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THE

Natural Hiſtory

OF

OXFORD-SHIRE,

Being an Eſſay towards the *Natural Hiſtory*

OF

ENGLAND.

BY

ROBERT PLOT, LL.D.

Late KEEPER of the

ASHMOLEAN MUSEUM,

AND

PROFESSOR of CHYMISTRY

IN THE

Univerſity of *OXFORD.*

—— πάντα γὰρ ὅπῃ
Ἐκ Διὸς ἀνθρώποι γεγνώσκομεθ', ἀλλ' ἔπι πολλὰ
Κέκρυπται. Arat. in Phænom.

The Second Edition, with large Additions and Corrections: Alſo a ſhort Account of the Author, &c.

OXFORD:

Printed by *Leon. Lichfield,* for *Charles Brome* at the *Gun* near the Weſt-End of St. *Paul's* Church, and *John Nicholſon* at the *King's-Arms* in *Little-Britain,* LONDON. 1705.

524748

Imprimatur hic Liber,

cui Titulus,

The Natural Hiſtory of Oxford-ſhire.

R. A. BATHURST,

Vice-Cancellar. *OXON.*

April. 13. 1676.

To the Sacred MAJESTY of

Charles the Second,

By the Grace of GOD,
King of *Great Britan, France* and *Ireland*,
Defender of the FAITH, &c.

May it pleaſe Your Majeſty,

IT had certainly been an unpardonable Preſumption, for ſo mean a Perſon as the Author of this Eſſay, to have preſented Your Majeſty with a yet meaner Diſcourſe, had not the Subject of it always deſerved the Notice, and the Enquirers into it, the Favour of Princes. Thus had *Ariſtotle*, in writing his Treatiſe of Animals, the Aſſiſtance of *Alexander*, and *Pliny* the Patronage of *Titus Veſpaſian* to his Natural Hiſtory.

Beſide, this Attempt ſeems more juſtly to belong to Your Majeſty, than any of their Hiſtories to their reſpective Patrons, it being ſo far from exceeding Your Majeſty's Dominions, that it contains but an Enquiry into One of the ſmalleſt Parts of them, *viz.* Your always Loyal County and Univerſity of *OXFORD*, whereas their Volumes are bounded only with the Univerſe.

Yet

Yet what particularly moved me to preſent it to Your Majeſty, is not only Your Favour to Learning in general, and eſpecially to this Place; but much more Your Majeſty's exquiſite Inſight into the Matter it ſelf, inſomuch that though the former might have given me ſome Confidence of Your Majeſty's Acceptance, yet it ſeems more my Intereſt to appeal to Your Judgment, and humbly to implore Your Majeſty's Deciſion, Whether if *England* and *Wales* were thus Survey'd, it would not be both for the Honour and Profit of the Nation?

Which Deſign, If Your Majeſty think fit to diſapprove, it will yet be ſome Satisfaction to the Author, that he has ſhew'd his ready (though miſguided) Zeal to ſerve his Country: But if Your Majeſty ſhall judge it Advantageous to the Kingdom, or but any way worthy Your Majeſty's Diverſion, there ſhall none more induſtriouſly and chearfully proceed in it, than

Your Majeſty's moſt Loyal,

And moſt Obedient Subject,

ROB. PLOT.

TO THE READER.

A Great part of theſe Papers were Printed eight years ſince, and ſome of them have ſeen the light no leſs than twelve : But ſince that the Copies have been diſpoſed of, and the Impreſſions ſold, the Bookſeller *hath thought fit to Reprint them together. In order to which, whilſt he gave me the Opportunity to read them over, I could not omit the making of divers Additions, and adjoyning another Journey through the delightful Country of* Lombardy : *Calling to mind the Magnificence of ſome* Roman *Antiquities, and the Remarkable Actions of great Men in thoſe Quarters. Whereby I might give a ſhort Account of the ſtrange Fate and various Revolutions of divers of their ancient Cities. As to the natural Curioſities and Obſervations in the firſt parts, it would be unneceſſary to make any Introduction, they having now run through ſo many hands. I can only ſay, that what you had in ſcattered parts before, are here compacted together in one intire Volume, and hope for the ſame kind Acceptance. The number of the Cuts are increaſed, and the Figures of divers Habits, Medals and Antiquities, added: The Particular Deſcription of which, in this* Preface *would prevent the ſatisfaction of conſidering them in their proper places; to which I ſhall refer you, wiſhing you the ſame pleaſure in viewing them there, that I have had formerly in beholding them in their due Situations, and in the Contemplation and Deſcription of them afterwards.*

Edward Brown.

To the READER.

THough *this* Eſſay *has ſwell'd to ſo much greater a* Bulk *than ever I expected it could poſſibly have done, that I might well have ſuperſeded any further Addreſs than that of* Dedication; *yet it being but neceſſary to acquaint the* Reader *with ſome matters that are general, and will ſerve for all other* Counties *as well as* this, *I thought good to put them down briefly as followeth.*

And firſt, that though I dare not pretend the Map *of* Oxford-ſhire, *prefixt to this* Eſſay, *is ſo accurate as any I ſhall make hereafter, yet I dare promiſe the* Reader, *it far exceeds any we had before; for beſide that it contains all the* Market Towns, *and many* Pariſhes *omitted by* Saxton, Speed, &c. *it ſhews alſo the* Villages, *diſtinguiſhed by a different* Mark *and* Character, *and the Houſes of the* Nobility *and* Gentry, *and others of any magnitude within the* County; *and all theſe with their* Bearings *to one another, according to the* Compaſs.

And as for the Diſtances, *though I dare not promiſe them* Mathematically *exact* (*which by the* Riſings *and* Fallings *of the Ground,* interpoſitions *of* Woods, Rivers, &c. *I think ſcarce poſſible in many places to be given at all*) *yet ſome few of them are as* true, *as actual* Dimenſuration, *and moſt of them as the Doctrine of* Triangles, *and the beſt Information, all compared together, could direct me to put them: So that provided they have not been moved in the* Graving (*as I think they have but little*) *I take them all ſeated not far from the* Truth.

As for the Scale *of* Miles, *there being three ſorts in* Oxford-ſhire, *the greater, leſſer, and middle* Miles, *as almoſt every where elſe; it is contrived according to the middle ſort of them; for theſe I conceive may be moſt properly called the true* Oxford-ſhire *Miles, which upon actual* Dimenſuration *at ſeveral places, I found to contain for the moſt part* 9 Furlongs *and a* Quarter, *of which about* 60 *anſwer a* Degree: *Where, by the way, it's but expedient that the* Reader *take notice, that I intend not that there are* 60 *of theſe* Miles *in a* Degree, *according to the common Account; for reckoning* 5280 *Feet,* (*or* 8 Furlongs) *to a* Mile *as uſually in* England, *no leſs than* 69 *will correſpond to a* Degree; *upon which account it is and*

no other, that of the middle Oxford-ſhire *Miles, each containing* 9 Furlongs *and a* Quarter, *about* 60 *will do it.*

According to theſe Miles, *the* Degrees *of* North-latitude *are divided into* Minutes *on each ſide the* Map, *chiefly made off from the exact* Northern-latitude *of* Oxford, *collected from the many Years Obſervations of Dr.* Banbridg, *and at laſt concluded to be ſeated in the* 46 Minute *of the* 51 Degree, proxime; *the* 52*d* Degree *beginning at the ſmall Line paſſing through* Mixbury, Clifton, *North of* Deddington, *the two* Barfords, South-Nuneton, *and between* Hoke-Norton *and the* Lodge: *By which Diviſion 'tis eaſie to know to a* Minute *of a* Degree, *nay almoſt to a* ſecond, *in what Latitude every* Town, Pariſh, Village, *and* Gentleman's *Houſe is ſeated.*

Beſide, for the Houſes *of the* Nobility *and* Gentry, *this* Map *is ſo contrived, that a* Foreigner, *as well as* Engliſhman, *at what Diſtance ſoever, may with Eaſe find out who are the* Owners *of moſt of them; ſo as to be able to ſay that this is ſuch or ſuch a* Gentleman's *Houſe: And all this done by* Figures *put to every ſuch* Houſe, *which referring again to* Figures *of the ſame Value, placed in Order over the* Arms *in the* Limb *of the* Map, *ſhew in the Bottom of each* Shield *the* Nobleman *or* Gentleman's Name, *whoſe Houſe it is; their reſpective* Coats *of* Arms *being always placed between the* Figure *and* Name: *which too* (*all but ſome few*) *are cut in their* Metals, Furrs, *or* Colours, *as born by their* Owners.

And not only the Shields, *but* Ordnaries, Charges, Differences, &c. *where they are not too ſmall: if* Argent, *being left* White; *if* Or, *filled with ſmall Points; if* Gules, *lineated* Perpendicularly, *or in* Pale; *if* Azure, Horizontally *or* Feſs-ways; *if* Vert, Obliquely *or* Bend-ways; *if* Sable, *both* Pale *and* Feſs-ways, *as may be ſeen in the* Map, *which are all the* Colours *made uſe of there. And if ever hereafter I ſhall meet with any bearing* Purpure, Ten, *or* Sanguine; *the firſt ſhall be repreſented with* Lines *in* Bend-ſiniſter; Ten, *with* Lines Salter-ways, *mixt of* Vert *and* Purpure; *and* Sanguine, Paly-bendy, *mixt of* Gules *and* Purpure.

According to this Method, *not only the* Arms *of the* Univerſity, *all the* Colleges, *and* Towns-incorporate *in the* County (*which I have placed in the upper Margin of the* Map) *but on the ſides and bottom, thoſe of the* Nobility *and* Gentry, *are induſtriouſly ranged in* Alphabetical *Order, to avoid the Difficulties that might otherwiſe have riſen about* Precedency: *which, beſide the uſe above-mentioned of diſcovering the* Owners *of the Houſes, and that they are an Ornament to the* Map, *I hope may alſo have theſe other good*

Effects.

Effects. 1. *That the* Gentry *hereby will be ſomewhat influenced to keep their* Seats, *together with their* Arms, *leaſt their* Poſterity *hereafter, not without* Reflections, *ſee what their* Anceſtors *have parted with. And ſecondly,* Vagabonds *deterred from making counterfeit* Paſſes, *by putting falſe* Names *and* Seals *to them, both which may be diſcovered by ſuch* Maps *as theſe.*

To theſe add the ancient Houſes of Kings, *the principal* Seats *of ancient* Baronies, *ancient* Ways, Fortifications, *and the* Sites *of* Religious Houſes, *all diſtinguiſh'd as deſcribed by their reſpective* Marks *in the* Table *for that Purpoſe. All which put together, make the* Sum *of the* Map, *as I intend they ſhall in all others hereafter, ſo that thoſe* Mémento's *need no more be repeated, ſince they are deſigned to be applied to all following* Maps *as well as this.*

Yet this Map, *though it contains near five times as much as any other of the* County *before, partly by reaſon of its being the* firſt *I ever made, and partly becauſe, either of the mere* Ignorance *or* Abſence *of ſome, and over curious* Peeviſhneſs *that I met with amongſt others, is not ſo perfect, I confeſs, as I wiſh it were; there being upon theſe accounts, ſome few* Arms *omitted, and others out of place at the Foot of the* Map, *and perhaps here and there a* Village *over-look'd: wherefore I have entertain'd ſome Thoughts of cutting it again, and perhaps ſomewhat larger, to be hung up in* Frames (*without Alteration of this for the* Book) *with all the* Defects *above-mention'd ſupply'd; provided ſuch* Gentry *as find their* Arms *omitted, or any* Villages *near them containing ten Houſes (under which number I ſeldom think them worth notice) pleaſe to bring in their* Arms *in* Colours, *with the particular* Bearings *and* Diſtances *of their* Houſes *and* Villages, *from the moſt noted place near them, to the* Porter *or one of the* Keepers *of the* Bodleyan Library, *who will be ready to receive them, or any other Curioſity of* Art *or* Nature, *in order to the compiling an* Appendix *to this* Work, *to be Printed apart.*

Which is all concerning the Map, *but that the* Reader *alſo note, that the Right Honourable the Earl of* Berkſhire, *Lord* Lovelace, &c. *are deſignedly left out, in regard that though they have* Eſtates *and* Seats *in this* County, *yet their chiefeſt, and places of moſt common Reſidence being elſewhere, I have choſen rather to omit them here, and to place them in* thoſe *that ſeem their more deſirable* Counties.

Concerning the Hiſtory *it ſelf, I can adviſe little more, but that I undertook it at firſt for my own* Pleaſure, *the Subject of it being ſo pleaſant, and of ſo great Variety, that*

it

it ſurprized me to think how many Learned Ages *had paſt (careful and laborious enough in compiling the* Civil *and* Geographical *Hiſtories of* England) *without ſo much as ever attempting that of* Nature *or* Arts: *it ſeeming to be a deſign (had the* Undertaker *been ſuitable) more highly deſerving of the Publick too, than either of the former, as tending not only to the Advancement of a ſort of* Learning *ſo much neglected in* England, *but of* Trade *alſo, which I hope in ſome meaſure is made to appear in the following* Treatiſe.

Which though ſufficient to juſtifie my Choice of this Subject, *yet I ventured not upon it without the joint Approbation of the moſt Knowing in theſe matters, ſuch as the Honourable* Robert Boyle, *Eſq; Dr.* Willis, *Dr.* Wallis, *Dr.* Bathurſt, &c. *whoſe celebrated Names ſerving to remove the groundleſs Suſpicions many had of the Attempt, I proceeded to give this* Specimen *of it: Wherein the* Reader *is only deſired to take notice, that moſt of the* Curioſities, *whether of* Art, Nature, *or* Antiquities *engraven in the* Cuts, *are ſo certain Truths, that as many as were portable, or could be procured, are in the Hands of the* Author. *But for ſuch things as are inſeparable from their places, they remain to be ſeen as in the Hiſtory directed, there being nothing here mentioned, but what either the* Author *has ſeen himſelf, or has received unqueſtionable* Teſtimony *for it, which for the moſt part, if not always, the* Reader *will find cited.*

In the Philoſophical *part,* I *have chiefly embraced the* Principles *of Dr.* Willis, *as the moſt univerſally known and received, and therefore moſt likely (in this inquiſitive* Age) *to be the trueſt; which if I have any where miſ-applied (as 'tis manifold Odds ſome where or other I may) yet I doubt not but the Learned and Sober* Reader *will candidly accept of the* Honeſty *of my* Endeavour *in Excuſe of my* Error. *But as for the hot-headed half-witted* Cenſurer, *who perhaps only looks on the Title of a* Chapter, *or here and there a* Paragraph *that makes for his Turn, I muſt and do expect the Laſh of his Tongue, it being indeed his Buſineſs to find out the* Lapſes, *and decry all* Attempts, *wherein* (forſooth) *he himſelf has not been conſulted: But I would have ſuch to know (that if I meet with but proportionable Encouragement from the former) 'tis not all they can ſay or do, ſhall diſcourage me from my* Purpoſe; *for if I have erred in any thing, I ſhall gladly receive the calm Reproofs of my* Friends, *and ſtill go on till I do underſtand my Buſineſs aright; in the mean-time contemning the* Verdict *of the* Ignorant *and* Faſtidious *that throw Words in haſte.*

THE

THE PUBLISHER TO THE READER.

IT may not be altogether unacceptable to the Reader, to give a ſhort account of the Additions and Alterations in the ſecond Edition of this Hiſtory; whereby the whole is of greater Uſe and Advantage, and many Paſſages explained by a true Comment and Expoſition of the Author.

Firſt therefore, You have the Additions annexed to the End of each Chapter, with the number of the Paragraphs to which they have Reference.

Secondly, Such Additions as I thought might be inſerted in the Text, without diſturbing the Senſe of the foregoing or ſubſequent Periods, are mark'd and diſtinguiſh'd by inverted Comma's.

Thirdly, Nothing is omitted that is contained in the other Edition, unleſs ſuch Words or Expreſſions, which through length of time, have loſt their Stamp and Signature, for which others are ſubſtituted of a more general and approved Signification.

Fourthly, Where Information could be had, or the ſhortneſs of Time would permit, I have changed the Names of the Nobility, or Gentry, who have had Seats in this County, by giving the Name of the preſent Proprietor, or Lord of that place.

Fifthly, Becauſe there have been lately ſome new Inventions in this County, I have inſerted ſuch as I thought moſt uſeful in their proper places.

Laſtly, I cannot but acknowledge the friendly Aſſiſtance and Communication I received from the Ingenious Thomas Kirke, *Eſq; by whoſe Directions I have been aſſiſted in ſeveral Particulars relating to the* Map *and other places in this Hiſtory.*

It were to be wiſh'd, that all the Counties in England *were as accurately Survey'd as this of* Oxford-ſhire, *and that of* Stafford-ſhire; *which would be of that Importance to the readier diſpatching both of Publick and Private Affairs, and of that Conſequence to thoſe that would underſtand our* Engliſh *Cuſtoms and Conſtitutions, as no one can eaſily imagine: To which difficult Work our Author had very much contributed had he lived to compleat the Hiſtories of* Middleſex *and* Kent, *which would be worth the Attempt of ſome* Philoſophical Genius *of this Age.*

As to the Objections which have been raiſed againſt ſome of our Author's Hypotheſes *in* Natural Philoſophy, *they will appear upon Examination to be trivial and groundleſs, and to have no other Foundation than ill Nature and Cenſoriouſneſs, the two worſt Ingredients of Human Compoſition.*

I ſhould in the next place proceed to offer at ſomething in Praiſe of our Author, but his Merit and Character are too well known to need any Panegyrick or Commendation from me, and eſpecially ſince I am ſuperſeded in that by the Account which is given of Him by that curious Naturaliſt, Mr. Edward Lhwyd, *Keeper of the* Aſhmolean Muſeum *in* Oxford; *which therefore I have prefix'd to the Beginning of this Hiſtory.*

(c) J. B. *M.A*

Univ. Coll. Oxon.
June 15*th*, 1705.

A SHORT
Account of the AUTHOR.

ROBERT PLOT, LL. D. Son of *ROBERT PLOT*, Captain of the *Miſtis* in the Hundred of *Milton*, in the County of *Kent*, was born, in the Year of our Lord 1641, at *Sutton-Barn* in the Pariſh of *Borden* in the ſaid County, and Educated at *Magdalene-Hall* in the Univerſity of *Oxford*; where in the Year 1664, he took the Degree of M. A. and in 1671, he proceeded Doctor of Laws: he removed afterwards to *Univerſity College*; and in the Year 1677, he publiſhed his *Natural Hiſtory of Oxford-ſhire*; which he wrote (as * 'tis thought) in Imitation of a Book of Dr. *Childrey*'s, entituled *Britannia Baconica*, or the *Natural Rarities of England*; and afterwards publiſhed that of *Stafford-ſhire*, in the Year 1686. the former being Dedicated to King *Charles* II. and the latter to his Brother and Succeſſor King *James*. Of both theſe Hiſtories, beſides their general Acceptance with the Learned and Ingenious, we have in theſe Words following the Approbation of the greateſt † Naturaliſt of our Age: *Robertus Plot* LL. Doctor, *e cujus Hiſtoriis Naturalibus lectis ſane dignisſimis Territorii tum* Oxonienſis, *tum* Staffordienſis, *non pauca in Hiſtoriam & Synopſin hanc noſtram tranſtuli*, &c. He was the firſt Keeper of the *Aſhmolean Muſeum*, or Repoſitory of Natural Curioſities and Antiquities in the ſaid Univerſity: to which Charge he was elected by the Donor thereof, *Elias Aſhmole* Eſq; in the Year 1683. to whom, two Years after, as a Specimen of his Gratitude, he Dedicated his *Tentamen Philoſophicum de Origine Fontium*, which he read in a Lecture before the Philoſophical Society inſtituted for the Promotion of Natural Knowledge. The ſame Year that he was made Keeper of the *Muſeum* by Mr. *Aſhmole*, he was alſo made Profeſſor of Chymiſtry by the Vice-Chancellor; both which places he diſcharged with great Integrity and Reputation all the time he continued therein, which was about the ſpace of ſeven Years, beſtowing at his Reſignation of the place of Keeper, a very large Collection of Natural Bodies, being ſuch as he had figur'd and deſcrib'd in his Hiſtories of *Oxford-ſhire* and *Stafford-ſhire*; which the Univerſity, according to their uſual conſtant Care for the Preſervation and Furtherance of all uſeful Knowledge, have repoſited in two large Cabinets, diſtinguiſh'd in the Catalogue of the *Muſeum*, by the Names of *Scrinium Plotianum Oxonienſe*, & *Scrinium Plotianum Staffordienſe*. He was alſo at the ſame time choſen Secretary to the Royal Society, and has publiſh'd their Philoſophical Tranſactions for the Years 1683, 1684.

Henry, late Duke of *Norfolk*, in the Year 1687, was pleaſed to confer on him the place of Secretary to the Court of Honour: And the following Year, he received the Title of Hiſtoriographer to King *James* the II. He was married to *Rebecca*, Widow of *Henry Burman*, on the 21*ſt* of *Auguſt* 1690; and was nominated *Mowbray Herald* Extraordinary, by the Warrant of *Henry*, late Duke of *Norfolk*, *January* the 20*th* 1694. He was conſtituted Regiſter by another Warrant, *January* 22*d* the ſame Year. He left as Iſſue two Sons, *Robert* and *Ralph Sherwood Plot*, and died at his Houſe called *Sutton-Barn*, by *Borden* in *Kent*, *April* the 30*th* 1696, and was Buried at *Borden* afore-ſaid the 4*th* of *May* following; in Memory of whom there is erected a decent and fair Marble containing the following Inſcription.

* *Vid. p.* 339. *Athen.* Oxon. † Joh. Raii *Synop. Method. Stirpium* Britannicarum.

H. S. J.

H. S. J.

Vir Clariſſimus,
ROBERTUS PLOT, LL.D.

Olim
In Academia Oxonienſi
Primus Chymiæ Profeſſor,
Cuſtoſque Muſei Aſhmoleani;
Societatis Regiæ Londini *Sodalis,*
Eidemque a Secretis;

Regi Jacobo *Secundo Hiſtoriographus,*
Summoque Angliæ *Mariſchallo*
In Curia militari Regiſtrarius;
Hiſtoria naturali Oxoniæ & Staffordiæ
Illuſtris:

Cantii, *natalis ſoli, Antiquitatibus*
(*ſi fata ſiviſſent*)
Illuſtrior exſiturus:

Feliciſſimus Vetuſtatis Scrutator,
Naturæ Indagator ſingularis;
Pietatis in Deum, in Regem,
In Eccleſiam & Academiam,
Cultor integerrimus:

Sibi ſolum Imperioſus,
Aliis omnibus quam facillimus:
Qui Veſicæ doloribus diutine tortus,
Mortalitatem
Exuit,

Prid. Cal. Maii,
Anno Salutis MDCLXXXXVI,
Ætatis ſuæ LV.

Rebecca Plot *ejuſdem Vidua*
Mœrens poſuit.

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[a] *De Augm. Scient. lib. 2. cap. 2.*

of

THE

THE NATURAL HISTORY OF Oxford-ſhire.

CHAP. I.

Of the Heavens and Air.

OXFORD, being not undeſervedly by Mr. *Cambden* ſtiled, *Our moſt Noble* Athens, *The Muſes Seat*, and, *One of* England's *Pillars*; nay, *The Sun*, *The Eye*, &c. It would have occaſion'd as ſtrange a Remark, as any to be mention'd in this whole Eſſay, had there not ſome eminent Celeſtial Obſervations been made in this County; eſpecially ſince the *Teleſcope*, which hath ſo much advanced *Aſtronomical* Speculations, ſeems to have been known here above 300 Years ago. But theſe being chiefly Matters of *Art*, relating either to the Diſcovery of the Magnitude, Figure, or Determination of the Motions of the Heavenly Bodies, muſt be referr'd (as moſt proper) to the End of this Work; it being my purpoſe in this *Hiſtory of Nature*, to obſerve the moſt Natural Method that may be.

2. And therefore I ſhall conſider, firſt, *Natural Things*, ſuch as either ſhe hath retained the ſame from the beginning, or freely produces in her ordinary Courſe; as *Animals*, *Plants*, and the *univerſal Furniture of the World*. Secondly, her *extravagancies* and *defects*, occaſioned either by the Exuberancy of Matter, or Obſtinacy of Impediments, as in *Monſters*. And then laſtly, as ſhe is reſtrained, forced, faſhioned, or determined, by Artificial Operations. All which, without Abſurdity, may fall under the general Notation of a *Natural Hiſtory*, things of *Art* (as the Lord *Bacon*[a] well obſerveth) not differing from thoſe

[a] *De Augm. Scient. lib. 2. cap. 2.*

of *Nature* in *form* and *eſſence*, but in the *efficient* only; Man having no Power over *Nature*, but in her Matter and Motion, *i. e.* to put together, ſeparate, or faſhion Natural Bodies, and ſometimes to alter their ordinary Courſe.

3. Yet neither ſhall I ſo ſtrictly tie my ſelf up to this Method, but that I ſhall handle the two firſt, *viz.* The ſeveral *Species* of Natural Things, and the Errors of *Nature* in thoſe reſpective *Species*, together; and the Things Artificial in the End apart: Method equally begetting iterations and prolixity, where it is obſerved too much, as where not at all. And theſe I intend to deliver as ſuccinctly as may be, in a plain, eaſy, and unartificial Stile, ſtudiouſly avoiding all Ornaments of Language, it being my purpoſe to treat of Things, and therefore would have the Reader expect nothing leſs than Words: Yet neither ſhall my Diſcourſe be ſo jejune, as wholly to conſiſt of bare Narrations, for where the Subject has not at all, or but imperfectly been handled, I ſhall beg leave either to enlarge, or give my Opinion.

4. Since then the Celeſtial Bodies are ſo remote, that little can be known of them without the help of Art, and that all ſuch Matters (according to my propoſed Method) muſt be referred to the End of this Book: I have nothing of that kind to preſent the Reader with, that's local, and ſeparate from Art, but the Appearance of Two *Parhelia* or Mock-Suns, one on each ſide of the true one, at *Enſham* on the 29th of *May*, early in the Morning, in the Year 1673. With them alſo appeared a great Circle of Light concentrical to the true Sun, and paſſing through the Disks of the ſpurious ones, as in *Tab.* 1. *Fig.* 1. which, though I ſaw not the *Phænomenon*, is as truly drawn (for ſo it was confeſt by ſome that did) as I could poſſibly have done it, if perſonally preſent; and yet ſo incurious was the amazed Multitude, that they could not ſo much as give me ground to gueſs at the *Diameter* of the Circle, much leſs whether it were interrupted in ſome of its parts, or interſected (as they uſually are) with any other Circles of a fainter Colour.

5. Whether theſe Appearances are cauſed by Reflection or Refraction in the Clouds, according to the old Philoſophy; or by both, in a great annulary Cake of Ice and Snow, as *Des-Cartes*; or by ſemi-opaque *Cylinders*, as *M. Hugens de Zulichem*[b], "or as moſt likely by Threds of Snow "very tranſparent and perpendicular, having the Figure of

[b] *Vid.* Hugenii *Diſſertationem de Coronis & Parheliis.*

"an

"an equilateral Triangular Priſme, as Mr. *Mariotte*[c], will be too tedious here to diſpute. Let it therefore at preſent ſuffice, that this *Phænomenon* is worthy our notice, in regard,

1. That no Circle paſſes thro' the true Sun's Disk; nor the ſpurious ones found in the interſection of two *Irides*, as in thoſe that appeared at *Rome*[d], *Mar.* 20. 1629. and in *France*[e], *April* 9. *Anno* 1666.
2. That whereas generally ſuch Mock-Suns appear not ſo bright, nor are ſo well defined as the true one is, theſe, according to the agreement of all, appeared of ſo even and ſtrong a light, that 'twas hard to diſtinguiſh the true from the falſe; and perhaps might not be inferior to the *Parhelia* mention'd by *Cardan*[f], or that lately were ſeen in *Hungary*[g].

6. When they appear thus bright and illuſtrious, Aſtrologers heretofore always preſaged a Triumvirate: thus the Triumvirate of *Antonius*, *Auguſtus*, and *Lepidus*, with all the Evils that attended it, was referred to the *Parhelia* ſeen a little before; and herein *Cardan* is ſo poſitive, that he fears not to aſſert, That after ſuch an Appearance, we ſeldom (if ever) fail of one, and therefore refers the *Parhelia* ſeen by himſelf to the Triumvirate of *Henry* the Second, King of *France*, *Charles* the Fifth, and *Solyman* the Turkiſh Emperor. And truly, were not theſe to be more than ſuſpected of vanity, it were eaſie to adapt a Triumvirate to ours: But my Religion, and that God that hath exhorted us, *not to be diſmayed at the ſigns of Heaven*, and ſolemnly profeſſes, that 'tis even He *that fruſtrates the tokens of the Liars, and makes the Diviners mad*[h], has taught me to forbear. I ſhall therefore add no more concerning theſe things, but that though moſt commonly the *Parhelia* with the true Sun, appear but Three in number, yet that ſometimes more have been ſeen; as Four in *France*[i], *Anno* 1666; Five at *Rome*[k], *Anno* 1629; Five in *England*[l], *Anno* 1233; and Six, *Anno* 1525, by *Sigiſmund* the Firſt, King of *Poland*[m]; which are the moſt that we read were ever ſeen at a time, though *Des-Cartes* endeavours to ſhew 'tis poſſible there may be Seven.

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[c] *Vid. Weekly Memorials, numb.* 13. *p.* 20. [d] Des-Cartes *Meteor. cap.* 10. & Gaſſend. *in Epiſt. ad* Renerium. [e] *Philoſ. Tranſ. numb.* 13. [f] *De Rerum Varietate, lib.* 14. *c.* 70. [g] *Philoſ. Tranſ. numb.* 47. [h] *Iſa.* 44. *v.* 24, 25. [i] *Philoſ. Tranſ. numb.* 13. [k] Des-Cartes, *Meteor. cap.* 10. [l] Mat. Paris, 17 Hen. III. [m] Des-Cartes *Meteor. cap.* & Fromond. *Meteor. lib.* 6. *art.* 2.

7. And indeed this had been all I thought I ſhould have mentioned concerning the Heavens, but that even now while I am writing this, at *Oxford* on the 23d of *November*, *Anno* 1675, about 7 at Night, behold the Moon ſet her Bow in the Clouds, of a white colour, entire and well determined, which continued ſo for about half an Hour after I firſt ſaw it. The reaſon why ſuch appear not of divers colours, as Rain-bows do that are made by the Sun, has been always aſcribed by Philoſophers, to the weakneſs of the Moon's Rays, not entring ſo deeply into the Opacity of the Clouds. But if we may give credit to *Dan. Sennertus* [n], it has once to his knowledge happened otherwiſe, *viz.* in the Year 1593, when after a great Storm of Thunder and Lightning, he beheld an *Iris Lunaris* adorned with all the Colours of the Rain-bow. As for ours, though I could not perceive in any part of it, that it had the leaſt ſhade of any Colour but White; however, I thought it not unworthy our notice, not only for the infrequency of the thing (they never happening but at or near the Full of the Moon, and then but ſo very ſeldom too, that [o] *Ariſtotle* profeſſes, that he ſaw but Two in above Fifty Years; and I know ſeveral learned and obſerving Men, that never ſaw ſuch an *Iris* in their lives) but alſo becauſe of the great Clemency of the Weather, that followed upon it at that time of the Year; there falling not one drop of Rain, nor any Wind ſtirring for Sixteen days after, but ſo great a ſerenity, that the Ways were as clean and paſſable then, as we could wiſh, or ever enjoyed them at Midſummer.

8. From the Firmament (waving all Conſiderations of the pure *Æther*, of which we know ſo little, that I ſhall ſay nothing) I naturally deſcend to the loweſt Heaven, I mean that ſubtile Body that immediately encompaſſes the Earth, and is filled with all manner of Exhalations, and from thence commonly known by the Name of the *Atmoſphere*. Whether beſide theſe Exhalations, there be any peculiar ſimple body, called Air, I leave to the more ſubtile Philoſophers, and conſider it here only, as 'tis the ſubject of Storms, of Thunder and Wind, of *Eccho's*, and as it has relation to Sickneſs and Health.

9. As to Tempeſts that have happened in this County, though perhaps there have been ſome heretofore attended with as deplorable Effects as any where elſe; yet becauſe they are no where tranſmitted to Poſterity, I ſhall only

[n] Sennertus *in Epitom. Phyſ.* [o] Ἐν ὅλῳ γὰρ ἐπὶ πολὺ τοῦ χρόνου. *Meteor. lib.* 3. *cap.* 2.

men-

mention Two within our Memory, *viz.* the Storm of Wind that happened one Night in *February*, *Anno* 166½, which though general (at leaſt all over *England*) yet was remarkable at *Oxford* in theſe two Reſpects. 1. That though it forced the Stones inwards into the cavity of *All-Hallows* Spire, yet it overthrew it not: and 2ly, That in the Morning, when there was ſome abatement of its fury, it was yet ſo violent, that it laved Water out of the River *Cherwell*, and caſt it quite over the Bridge at *Magdalen*-College, above the ſurface of the River near 20 foot high; which paſſage, with advantage of holding by the College-Wall, I had then the curioſity to go to ſee my ſelf, which otherwiſe, perhaps, I ſhould have as hardly credited, as ſome other Perſons now may do. But thoſe that have ſailed to the *Indies*, can inform them what force *Hurricane's* and *Turbo's* have, with what Violence and Impetuoſity they take up whole Seas of Water, and furiouſly mount them into the Air [p]. Now that ſuch as theſe may alſo happen at Land (though perhaps for the moſt part of leſs ſtrength) I think we have little reaſon to doubt, ſince our own Chronicles inform us, that in Q. *Mary*'s time, within a Mile of *Nottingham*, all the Houſes of two little Pariſhes, with their Churches, were wholly born down by ſuch a Tempeſt; and the Water, with the Mud from the bottom of the River *Trent*, that ran between them, carried a quarter of a Mile and caſt againſt Trees, with the violence whereof they were torn up by the Roots.

10. Of much ſuch another Land *Hurricane*, Cardinal *Bellarmin* gives us a relation ſo incredible, that he himſelf premiſeth, *Quod niſi vidiſſem non crederem. Vidi* (ſays he) *a vehementiſſimo vento effoſſam ingentem terræ molem, eamque delatam ſuper pagum quendam, ut fovea altiſſima conſpiceretur unde eruta fuerat, & pagus totus coopertus & quaſi ſepultus manſerit, ad quem terra illa divenerat* [q]. Which being ſufficient (I ſuppoſe) to evince the poſſibility of my Story, I proceed to

11. The Second Tempeſt of Thunder and Lightning, on the 10*th* of *May*, 1666. which though terrible enough to all parts adjacent to *Oxford*, yet was miſchievous only at *Medley*, a well-known Houſe, about a Mile, or ſomewhat more, diſtant from it; two Scholars of *Wadham*-College,

[p] *It was obſerved by an able Sea-man of* Briſtol, *that this Wind was the fag-end of a* Hurricane, *which began in* New-England *about three Hours before it came hither; the Sea-men obſerv'd that it went directly towards* England. [q] Bellarmin. *de Aſcenſ. Ment. in Deum, Grad.* 2. *cap.* 4.

alone

alone in a Boat, and newly thruſt off ſhore to come homewards, being ſtruck from the head of the Boat into the Water, the one of them ſtark Dead, and the other ſtuck faſt in the Mud like a Poſt, with his Feet downward, and for the preſent ſo diſturbed in his Senſes, that he neither knew how he came out of the Boat, nor could remember either Thunder or Lightning that did effect it. Others, in another Boat about Ten or Twenty Yards diſtance from the former, felt a diſturbance and ſhaking in their Boat, and one of them had his Chair ſtruck from under him, without hurt. But of this no more, a full relation of the Accident being already given by the Reverend and Learned Dr. *John Wallis*, late *Savilian* Profeſſor of *Geometry* in the Univerſity of *Oxford*, and publiſh'd in our Engliſh Philoſophical Tranſactions [r].

12. What happen'd before or after thoſe Tempeſts, I was not ſo curious in thoſe days to obſerve, but it might indeed be wiſh'd, as the learned and obſerving Dr. *Beale* adviſes [s], that ſome old Almanacks were written inſtead of New; that inſtead of the conjectures of the Weather to come, ſome ingenious and fit Perſons would give a faithful account from divers parts of the World, not only of the Storms, with the antecedents and conſequents of them, but of the whole Weather of the Years paſt, on every day of the Month: as it was induſtriouſly begun above 300 Years ago, by *William Merle* Fellow of *Merton* College, who obſerved the Weather at *Oxford* for every day of the Month for 7 Years together; *viz.* from *January Anno Dom.* 1337, to *January Anno Dom.* 1344. the MS. Copy of which Obſervations yet remain in the *Bodleian* Library [t]: "Such "a Diary of Weather as this was ordered to be conſtantly "kept by the Profeſſor of *Aſtronomy* of the *Muſæum Mi*"*nervæ*, that they might find the Cauſes of our Inſular "Varieties, which Obſervations were Monthly to be fairly "written out, and given up to their Library [u]. For from hence in time we might examine upon ſome grounds, as the learned Dr. *Beale* well remarks, how far the Poſitions of Planets, or other ſymptoms, or concomitants, are indicative of Weathers, and probably be forewarn'd of Dearths, Famines, Epidemical Diſeaſes, *&c.* and by their cauſes be inſtructed for remedies, or prevention. Certainly from ſuch Kalendars we might learn more in few

[r] *Philoſoph. Tranſact. numb.* 13. [s] *Philoſoph. Tranſact. numb.* 90. [t] *MS. Digby, fol.* 176. [u] *Vid.* Muſæum Minervæ *p.* 12.

Years,

Years, than by Obſervations at random all the days of our lives; and if they might be had from foreign and remote parts*, we ſhould then be in ſome hopes of true Inveſtigations of Heats and Colds, and of the bredth and bounds of coaſting Rains and Winds.

13. Next the Tragedies (it being as agreeable to my Method, as ſeaſonable to the Diſcourſe) it will not be amiſs to preſent the Reader with ſome of the Sports of *Nature*, and entertain him a-while with the Nymph *Eccho*; a Miſtreſs ſhe is indeed that is eaſily ſpoken with, yet known to few: If therefore I take pains to acquaint him with her, I hope I ſhall not perform a thankleſs Office.

14. Firſt therefore, that *Philechus* may not be out in his choice, whenever he attempts to court her in *Oxford-ſhire*, he muſt know that of theſe there are ſeveral ſorts, and may beſt, I ſuppoſe, be diſtinguiſh'd by their Objects, which are,

either { *Single*, ſuch as return the voice but once; and theſe again are either { *Polyſyllabical*, and Articulate, ſuch as return many Syllables, Words, or a whole Sentence. / *Tonical*, and Inarticulate, ſuch as return the Voice, but once, nor that neither, except adorned with ſome peculiar Muſical Note. }
Manifold, and theſe return Syllables and Words, the ſame oftentimes repeated, and may therefore be ſtiled *Tautological Eccho's*, which are cauſed

either by { Simple / Double } Reflection.

15. As for *Polyſyllabical articulate Eccho's*, the ſtrongeſt and beſt I have met with here, is in the Park at *Woodſtock*, which in the Day time, little Wind being ſtirring, returns very diſtinctly Seventeen Syllables, and in the Night Twenty: I made experiment of it with theſe Words,

-----Quæ nec reticere loquenti,
Nec prior ipſa loqui didicit reſonabilis Echo.

In the Day it would return only the laſt Verſe, but in the Night, about Twelve a Clock, I could alſo hear the laſt

* *Such Obſervations of the Weather every day of the month through the whole year* 1671. *were made by* Eraſmus Bartholine, *and are printed* inter Acta Medica Tho. Bartholini Obſ. 130.

Word

Word of the former *Hemiſtick* [*loquenti.*] The Object of which *Eccho*, or the *Centrum phonocampticum*, I take to be the Hill with the Trees on the *ſummit* of it, about half a Mile diſtant from *Woodſtock* Town, in the way thence to the Right Honourable the Earl of *Rocheſter*'s Lodge: And the true place of the Speaker, or *Centrum phonicum*, the oppoſite Hill juſt without the Gate at the Towns-End, about Thirty Paces directly below the Corner of a Wall incloſing ſome Hay-ricks, near *Chaucer*'s-Houſe: ſome Advantage I gueſs it receives from the Rivulet that runs as it were in a direct Line between the two Centers, and from the Pond at the foot of the object Hill; as alſo from the two other Hills that run obliquely up to it: Which may better be apprehended by the proſpect of the place, as in *Tab.* 1. *Fig.* 2.

16. That this *Eccho* makes return of ſo many Syllables, and of a different number in the Day and Night, being indiſputable and matter of fact; I proceed in the next place to the reaſons of theſe certainties, which poſſibly to every body may not be ſo plain. Firſt then, the cauſes why ſome *Eccho's* return more, and ſome fewer Syllables, I take to lye in the different diſtances of the objects (returning the Voice) from the place of the Speaker: for by experience 'tis found, that if the Speaker be too near the Object, the return is made ſo quick upon him, that the *Eccho* is as it were drowned in the Voice: but if he remove farther from it, then it begins to be clear and diſtinct; and if it be a *Polyſyllabical* one, it firſt repeats one Syllable, then two, three, four, five, or more, according as the ſpeaker removes farther off it, which I take to be the only true way of meaſuring the proportions of the ſpaces of Ground, requiſite for the return of one or more Syllables. That this is true, I ſhall uſe no Argument to perſwade, becauſe the experiment is ſubject to every Man's tryal; and if ſo, it muſt neceſſarily be admitted, that the Reaſon why this *Eccho* returns ſo much, is becauſe of the great diſtance of the Object from the Speaker.

17. What diſtance is required to the return of each Syllable, is beſt indeed determined by ſuch a procedure, where the Object is fore-known, and the condition of the place will admit of the experiment: but both theſe being wanting here (*Eccho's* themſelves being generally firſt known, and not the Objects) I was forced to make uſe of a new *analytical* Method, and find out the Object by the number of Syllables already returned, which being Seventeen in the Day time,

time, and Twenty by Night; and having before found by frequent experience, that according to *Blancanus* [w], no one Syllable will be returned clearly, under the diſtance of 24 Geometrical Paces, or 120 feet, I gueſs'd that the Object could not be removed leſs than 400 of the former, and 2000 of the latter. For the better underſtanding of which *Analyſis*, and for the Reader's more ſecure finding of the true diſtance of the Speaker in any other place, it may be convenient that he take notice, that all *Eccho's* have ſome one place whither they are returned ſtronger, and more diſtinct than any other, and is always the place that lies at right Angles with the Object, and is not too near, or too far off: for if a Man ſtand at oblique Angles with it, the Voice is better returned to ſome other Perſon at another place, than to the Speaker; and ſo if he ſtand too near, or far off, although he do ſtand at right Angles with it, which is plain by the *Diagram, Tab.* 1. *Fig.* 3. where

a. *is the true place of the Speaker.*
a b. *the vocal line falling at right Angles on the Object.*
c d. *places on each hand the true place, and oblique to the Object.*
e f. *places above and below the Object, whence alſo the Voice comes obliquely to it.*
g h. *places whence ('tis true) the Voice goes in right Angles to the Object, but* g *is too far off, and* h *too near.*

Now the Speaker ſtanding in *a*, and his Voice going in the ſtraight line *a b*, and ſtriking upon the Object ſo as to make right Angles with it, muſt needs return to the Speaker again in the ſame line, and no farther, becauſe he is ſuppos'd to ſtand at the two extreams of the whole mix'd line of action: but if he ſtand too near at *h*, then the *Eccho* repeats more Syllables, and diſtincter at *g* than either at *h* or *a*, becauſe *g* is now the extream of the line of action; for by how much the nearer the Speaker is to the Object, by ſo much the more forcible he ſtrikes it, which cauſes the rebound to be ſo much beyond him: and thus if he ſtand as much too far off, as at *g*, then the *Eccho* repeats more Syllables and diſtincter at *h*, than either at *a* or *g*, becauſe the diſtance being too great from *g* to *b*, and the reflection weak, the *Eccho* muſt needs terminate ſo much the ſhorter at *h*; all theſe being ſuppoſed to take up the whole line of the Voices direct and reflex action. Again, if the Speaker

[w] *Blancani Echometria Theorem.* 5.

ſtand in *c* obliquely to the Object, the *Eccho* is better heard at *d*, than either at *a* or *c*; and ſo if he ſtand at *d*, it is better heard at *c* than any other place: thus if he ſtand at *e* above the Object, the *Eccho* is beſt heard in the Valley *f*, *& vice verſa*. All which may be well enough made out, by throwing a Ball againſt a Wall, to which, if it be thrown in an oblique line, it returns not to the thrower, but to another place; and though the projicient do ſo throw it, that it ſtrikes at right Angles with the Wall, yet (like as in the Voice) if he ſtand too far off, it will fall as much too ſhort in the rebound, as it will exceed if he ſtand too near.

18. According to theſe grounds I carefully examined this *Eccho*, and found, upon motion backward, forward, and to each hand, the true *Centrum Phonicum*, or place of the Speaker, to be upon the Hill at *Woodſtock* Towns-End, about Thirty Paces below the corner of the Wall aforeſaid, directly down toward the *King*'s *Majeſty*'s Manor: from whence by meaſure to the brow of the Hill, on which my Lord *Rocheſter*'s Lodge ſtands, are 456 Geometrical Paces, or 2280 feet; which upon allowance of 24 Geometrical Paces, or 120 feet to each Syllable, to my great ſatisfaction I found to be agreeable to the return of 19 Syllables, *viz.* one fewer than it returns in the Night, and two more than in the Day.

19. The meaſure I muſt confeſs had been much more eaſie and Natural, could I have began from the Object, and ſo removed backward accordingly as the *Eccho* gradually increaſed in the repetition of more Syllables; for then I could have given the due proportion to each, if I had found any inequality upon the increaſe, which I gueſs there may be, becauſe the allowance of an equality ſeems to ſet the Object too far off by a Syllable or two. But it not being feaſible in this place, I was forced to take the former courſe; for in the Valley between the two Hills, being the whole *medium* through which the Voice paſſes, and the *Eccho* returns it, there is ſcarce any ſuch thing as an *Eccho* to be found; nay, if you ſtand at the Manor it ſelf, which is not far from the true place of the Speaker, and ſituate almoſt as high, and direct your Voice toward the place of the Object, you ſhall not have the leaſt return; whence 'tis moſt evident, that I could not uſe that procedure here, and therefore muſt deſire to be held excuſed from giving the proportions of ſpace, which I ſuppoſe, according to *Kircher* [x] may decreaſe, according as the number of Syllables increaſe, till I meet with an *Eccho* fit for the purpoſe.

[x] *Magia Phonocamptica, probl.* 5.

20. The

20. The reaſon of the difference between Day and Night, why it ſhould return ſeventeen Syllables in the one, and twenty in the other, may lie, I ſuppoſe, in the various qualities, and conſtitution of the *medium* in different ſeaſons; the Air being much more quiet, and ſtockt with exhalations in the Night than Day, which ſomething retarding the quick Motion of the Voice to the Object, and its return to the Speaker ſomewhat more, (by reaſon the Voice muſt needs be weakened in the Reflection) muſt neceſſarily give ſpace for the return of more Syllables.

21. Amongſt other Tryals of this *Eccho*, I diſcharged a Piſtol, which made a return much quicker than my Voice, and (at which I ſtill wonder) with a much different ſound from that the Piſtol made; whence I can only conclude, that the more forcibly the Air is ſtricken, (as alſo in the projection of a Ball) the ſooner the Reſponſe is made, and that poſſibly there may be ſome ſounds more agreeable to every *Eccho*, than others. And it being my Lord *Bacon*'s Opinion, That there are ſome Letters that an *Eccho* will hardly expreſs, and particularly the Letter S, which, ſays he, being of an interior and hiſſing ſound, the *Eccho* at *Pont Charenton* would not return [y]; hereupon I tryed, as well as his Lordſhip, with the word *Satan*, beſide many others of the ſame initial, but found the *Eccho* here neither ſo modeſt or affrighted, but that, though the Devil has been buiſy enough hereabout (as ſhall further be ſhewn near the End of this Hiſtory) it would readily enough make uſe of his Name.

22. Juſt ſuch another *Polyſyllabical Eccho* we have at *Magdalen-College*, in the Water-walks, near the Bull-work called *Dover-Peer;* it repeats a whole *Hexameter* Verſe, but not ſo ſtrongly as *Woodſtock:* Where the true Object of this may be, cannot ſo well be found by meaſure, becauſe of the many Buildings interpoſing; but I conjecture it may be about the publick Schools, or *New-College* *. I could gladly, I confeſs, have aſſigned it ſomething further off, becauſe I fear that Diſtance falls ſomewhat ſhort of our former account, but the Buildings beyond lying all lower than thoſe, it muſt by no means be admitted; which makes me think, there muſt be a Latitude allowed in theſe matters, according to the different Circumſtances perhaps of time, as well as place; and that poſſibly *Merſennus*

[y] *Nat. Hiſt. Cent.* 3. *numb.* 251. * *Since,* New-College *hath been advanced a Story higher,* A. D. 1675. *this* Eccho *is ſomewhat alter'd.*

might not be ſo much miſtaken, when he aſſigned to each ſyllable but 90 *Pariſian* Feet.

23. *Tonical Inarticulate Eccho's*, ſuch as return but ſome one particular Muſical Note, I have met with ſeveral, and do not doubt but that they are to be met with in moſt arched Buildings, though ſcarce obſerved, or noted by any. Such a one is that in the Gate-houſe at *Braſen-noſe College*, which anſwers to no Note ſo clearly, as to *Gamut*. The curious and well-built Gate of *Univerſity-College*, to none ſo well as *B mi*. The like Note I met with again at *Merton-College*, in the Vault between the old and new Quadrangles, and in the large arched Vault of *Queens-College* Gate: Whereas the ſtately arched Stair-caſe leading into *Chriſt-Church* great Hall, will return all the Notes through the Scale of Muſick. Theſe I muſt confeſs are but *Eccho's* improperly ſo called, becauſe they will expreſs nothing that's articulate, and therefore rather fall under the notation of a *Bombus;* yet their cauſe being ſomewhat nice and ſubtile, I thought not fit to paſs them by, but to take occaſion from hence to advertiſe the Reader, that there are ſome other inanimate Bodies beſide the *Load-ſtone*, that though they have no Senſe, yet have a ſort of perception, which I take to be ſufficiently proved from theſe Vaults, that ſeem to have a kind of Election to embrace what is agreeable, and exclude all that's unpleaſant to them; thus are the very Seats in *Churches* and *Chappels* affected with ſome peculiar Notes of the *Organ;* and I have a Friend (a Violiſt) whom I dare believe, that ſays, his Thigh is thus ſenſible of a peculiar Note, as often as he lights on it during his playing. Some have imputed much of this in Buildings, to the figure and accurate ſtructure of the Arch, and that where they have different Shapes and Magnitudes, there will be different Tunings alſo: But I do not find it agreeable to Experience, there being another Vault in the entrance into *Merton-College* Chappel, much leſs, and of a far different figure from that other before-mentioned in the ſame *College*, which returns very near, if not exactly the ſame Note: And ſo do the Gates of *Queens* and *Univerſity Colleges*, than which in Height, Breadth and Length there are few more different.

24. It muſt therefore rather be referr'd to the Pores of the Stones, which are fitted to receive ſome Vibrations of the Air, rather than others; juſt as in two Viols tuned to a *Uniſon*, where the Strings being ſcrewed to the ſame Tenſion, and their Pores put into the ſame Figure, if you ſtrike

ſtrike one, the correſponding String of the other Viol preſently anſwers it: becauſe the firſt String being ſuch a Tenſion, and having Pores of ſuch a Form, makes Vibrations in the Air, ſuitable only to the Pores made by the ſame Tenſion in the other String.

25. As for *Tautological Polyphonous Eccho's*, ſuch as return a word or more, often repeated from divers Objects by ſimple reflection, there are none here eminent; the beſt I have met with is at *Ewelme*, on the ſide of a Bank, in a Meadow *South* and by *Weſt* (about a furlong) from the *Church*: it returns the ſame word three times, from three ſeveral objects of divers diſtances, which I gueſs may be, 1. The *Manor*, 2. The *Church* and *Hoſpital*, And 3ly, Colonel *Martin*'s Houſe. Another there is near *Oxford*, about the Eaſt-end of *Chriſt-Church* new Walk, that repeats three or four ſyllables twice over; and a treble one, at the moſt Northern point of the Fortifications in *New-Parks*: But there being many better than theſe of the kind, no doubt in other places, I ſhall reſerve their Conſideration at large to a better Opportunity, and only take notice here by the way, that theſe are never of many ſyllables; and that always, by how many more they are of, by ſo many the fewer times they repeat them, becauſe ſo great diſtance will be required for their objects, that they muſt quickly be removed out of the reflex action of the voice: for ſuppoſe but a ſentence of ten ſyllables, *viz. Gemitu nemus omne remugit*, and allow, as before, for the return of each ſyllable 120 feet, the firſt object muſt be 1200 feet off; and the ſecond, with abatement for diſtance, at leaſt 2000; and the third, certainly out of the Voices reach, beyond all hopes of any reſponſe. Indeed, could we meet with one of *Merſennus*'s *Eccho's*, where 90 *Pariſian* feet would return us a ſyllable, then ſuch an *Hemiſtick* might be reſounded three times, or perhaps a whole *Hexameter* twice; yet however ſmall a ſpace may be found for the clear repetition of ſuch a Verſe, I cannot think it can poſſibly be, that any *Eccho* ſhould repeat one eight times over: for ſuppoſe a ſmaller diſtance would ſuffice, then that allowed by *Merſennus*, as but 350 yards to a Verſe of ſeventeen ſyllables, and allowing ſome decreaſe for the Objects diſtances; yet I do not doubt, but two or three of the furtheſt muſt needs be out of the Voices action.

26. Much leſs ſure can any ſingle Object perform this, and yet *Jacobus Boiſſardus*, in his *Topography* of *Rome*, reports

ports this to be true upon his own Knowledge. *On the* Appian *way* (ſays he) *amongſt many other vaſt Ruines, which ſome think to be the Caſtle wherein the* Prætorian *Soldiers lay, there are many Sepulchers, obtuſe and ſolid* Pyramids, *&c. But the moſt eminent is of a round Form, made of ſquared white Marble, like a Tower, hollow within, and open at the top, erected in memory of* Cæcilia Metella: *it ſtands in the corner of another Wall, in whoſe circuit there are carved in Marble, near* 200 *Bull's Heads, whence 'tis called,* Capo di Boi. *At the Foot of the Hill where this Tower ſtands, if any man pronounce an* Heroic *Verſe, a wonderful* Eccho *there is, that returns it often entirely and Articulately. I my ſelf,* ſays he, *have heard it repeat the firſt Verſe of* Virgil's Æneids *diſtinctly eight times, and afterward broken and confuſedly. No place in the World yields the like* Eccho [z], *&c.* And what if I add, *nor that neither,* ſince beſide the natural Impoſſibility of the thing, the induſtrious *Kircher,* after he had uſed all imaginable Care in the Queſt of it, came away unſucceſsful, and found no ſuch matter *.

27. But though we have no conſiderable *Tautological Eccho's,* by a ſimple Reflection, yet we have others of no inferior account made by a double one, which alſo ariſing from divers Objects, though in a different manner, belong to this place. Of theſe, though there are ſcarce any that will return a *Triſſyllable,* occaſioned, I ſuppoſe, by the nearneſs of the ſecondary Objects, yet a clap with the Hands, or ſtamp with the Feet, there are ſome will return eight, nine, or ten times; the Noiſe dying, as it were, and melting away by degrees, in ſuch a trembling manner, that I ſometime thought of the Epithet [*tremulous*] to diſcriminate this ſort of *Eccho* from the reſt.

28. At *Heddington,* in the Garden of one Mr. *Pawling* late Mercer of *Oxford,* there is a Wall of about 40 Yards long, built for the advantage of the Fruit, with divers *Niches;* to which, if you ſtand but a little obliquely, ſo as to ſee the *Peers* ſtanding out between each two of them, you have the ſeveral Objects of ſuch an *Eccho,* not above nine or ten Foot diſtance from each other, which return a clap with the Hand, or a *Monoſyllable* (the Wind being quiet and ſtill) at leaſt nine, if not ten or eleven times, but ſo thick and cloſe, that even a *Diſſyllable* breeds a confuſion: Where

[z] *Jani Jacob. Boiſardi, Topographia Romæ, p.* 65, 66. * *Magiæ Phonocampticæ, Præluſ.* 2.

by

by the way if it be objected, that (the whole Wall being but 40 Yards, or 120 Foot long) according to the aforelimited diſtance for *Eccho's*, a *Monoſyllable* ſhould not be returned above once at moſt: It is to be noted, that theſe *Eccho's* made by a double Reflection, begin (quite contrary to all others) at the remoteſt Object from the *corpus ſonorum*, which, in as many as I have yet ſeen, is a diſtinct Wall, falling on that, on which the reſt of the Objects are, in right Angles; and this Object it is, that firſt terminates the Voice, Clap, or Stamp; and from which, by Reflection, they next ſtrike the *ultimate* ſecondary Object, then the *penultimate* and *antepenultimate;* which, though nearer to the *corpus ſonorum* in reſpect of the Situation of the Objects, yet are ſtill further off in reſpect of the Voice, or other motion of Sound: whence it comes to paſs, that the neareſt Object to the *corpus ſonorum* is laſt ſtricken, and therefore repeats a Syllable as well as any of the reſt, becauſe indeed in that reſpect the furtheſt from it.

29. After the Voice or Clap has ſtricken theſe ſecondary Objects, by way of Acceſſion (as it were) to the *corpus ſonorum*, it is carryed again by a ſecond Reflection away from it toward the primary Object, and ſometimes over it, as it appears to be in this *Eccho* at *Heddington*, where the Sound ſeems as it were ſomewhat refracted, for it is heard quite out of the place, as is evident to any one that ſtands in the *North-Eaſt* Corner of the Garden and ſpeaks *Weſtwards*, who will hear the *Eccho* to be really in the Hortyard on the other ſide the Wall, than in the Garden, which I take moſt certainly to be occaſioned by this ſecond Reflection; for let any one that ſuſpects the *Eccho* to be really in the Hortyard and not in the Garden, go but into it, and he ſhall there find no ſuch matter as an *Eccho*. All which, is more ſenſibly explained in *Tab.* 1. *Fig.* 4. where

a. *is the place of the Speaker, or Maker of any other ſound.*

b. *The primary Object, firſt terminating the ſound, and reflecting it on the* Peers *of the other Wall.*

cccccc. *The* Peers *between every two* Niches, *that receive the ſound reflected from the primary Object, and make the* Eccho.

ddddddd. *The lines wherein the Voice is carried back again over the primary Object, whereby the* Eccho *appears out of its place.*

But

But herein let it be noted, that I am not ſo Sanguine as to exclude all fears that it may be otherwiſe, but only ſuggeſt what ſeems moſt probable at preſent, *cum animo revocandi*, whenever I ſhall be better informed by another, or my own future Experience.

30. At *New-College* in the Cloiſters, there are others of this kind, to be heard indeed on all ſides, but beſt on the *South* and *Weſt*, becauſe on thoſe there are no Doors, either to interrupt or waſte the Sound: Theſe return a Stamp or Voice, Seven, Eight, or Nine times, which ſo plainly is occaſioned by the *Peers* between the Windows, that on the *Weſt* and ſhorter ſide (being but 38 Yards long) the Returns are more quick and thicker by much than on the *South*, where the primary Object being above Fifty Yards removed from the *corpus ſonorum*, and the ſecondary ones proportionably further, the Returns are much ſlower and more diſtinct; in ſo much that on that ſide the *Eccho* will return a *Diſſyllable*, whereas on the *Weſt* ſide you can have but a *Monoſyllable* only. If it be objected, that according to the Rule, 38 Yards are not enough for the Return of a *Monoſyllable*, I anſwer, that though it may be likely enough that the Return of the primary Object on that ſide is not heard, yet that there is none of the ſecondary ones, or *Peers* between the Windows, but what are diſtant from the Speaker above 40 Yards, and therefore may well return a *Monoſyllable*. And if again it be objected, that the *interval* of an *Eccho* muſt be *liberum* and *patens* *, and it be further demanded, how it comes about that we have ſuch *Eccho's* in Cloiſters, when we can have none in Wells that are covered with Houſes, becauſe the *interval* is cloſed at both Ends, as this Cloiſter is: It muſt be anſwered, that that Rule holds only in narrow *intervals* cloſed up on all ſides, and not in ſuch Cloiſters that are open and arched to the top; which may alſo be the Reaſon why at *Magdalen College*, where the Cloiſters are covered with a flat Roof, they have but an inconſiderable *Eccho*, and at *Corpus-Chriſti* none at all; notwithſtanding they have all other Conditions requiſite.

31. In the Cloiſter at *All-Souls-College*, in the *North* and *Weſt* ſides, where no Doors hinder, there is much ſuch another, which to the Stamp of ones Foot, or Clap with the Hands, anſwers Four or Five times, with a Noiſe not unlike the ſhaking of a Door, and in nothing differing from

* *Blancani Echometria, Theoremate*, 4.

the

TAB. I. Cap: I.

ad pag 16

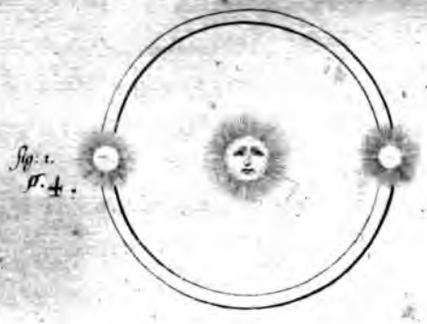


fig: 1.
§. 4.

§. 17. fig: 2

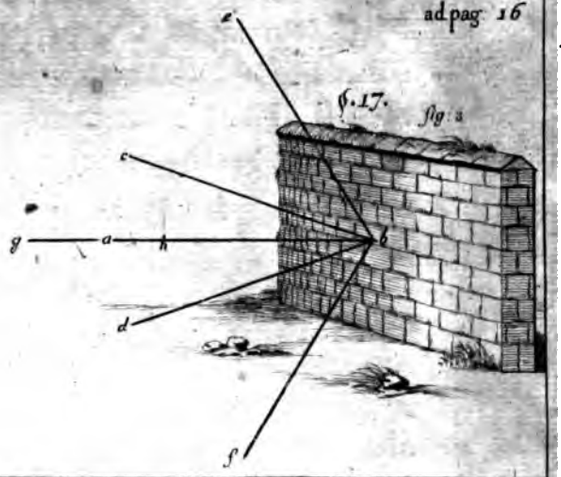
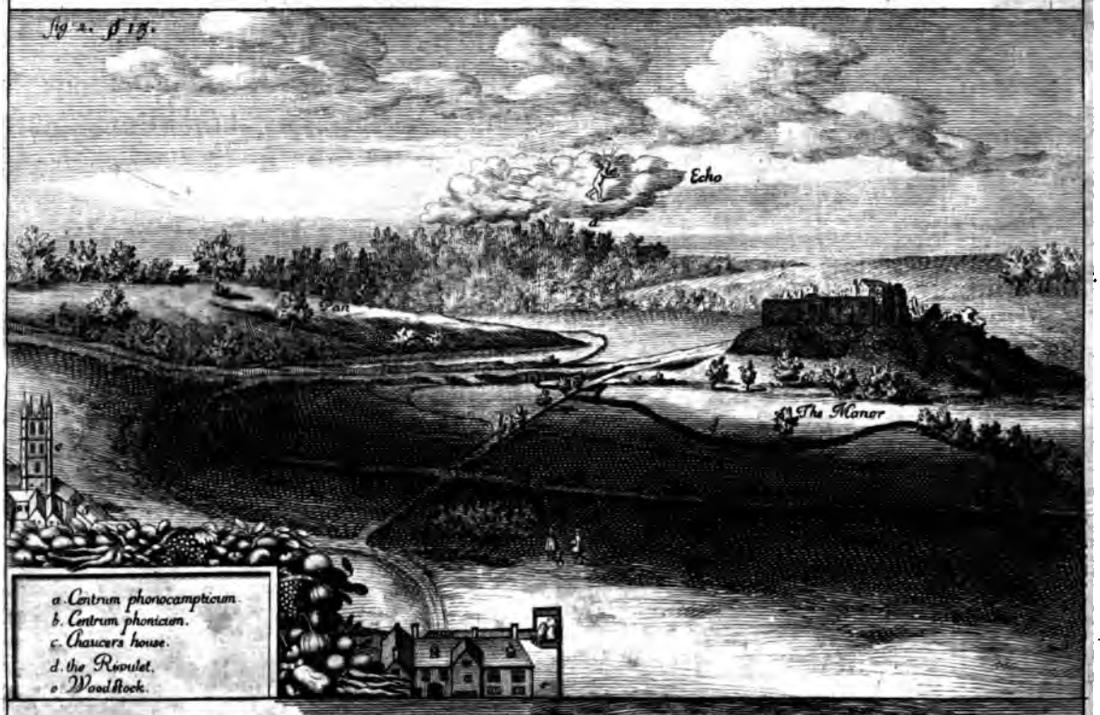
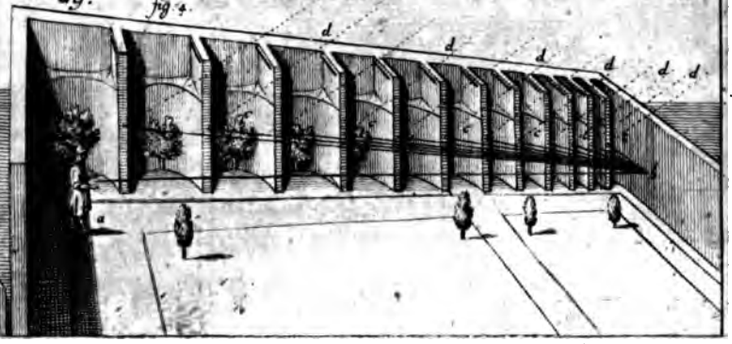


fig: 2. § 18.



a. Centrum phonocampticum.
b. Centrum phonicum.
c. Chaucers house.
d. the Rivulet.
e. Woodstock.

§. 29. fig: 4.



M. Burghers fculp.

the former, but that to the Voice it makes no Reſponſe *: and indeed, it would be matter of Wonder if it ſhould, ſince no one ſide of that Cloiſter comes near the Diſtance aſſigned for the return of a Syllable, whereas that at *Heddington* juſt equals it, and one ſide of *New-College* much exceeds it.

32. Other *Eccho's* there be that belong to this Place, as *Eccho's* upon *Eccho's*, and ſuch as my Lord *Verulam* [a] ſtiles *Back-Eccho's*; of which, becauſe I have met with none conſiderable, I am content to paſs them by, having ſufficiently, I ſuppoſe, by this time tired the *Reader*'s Patience with too tedious a conſideration of ſo particular a Subject, and make haſte to treat of the *Air* of *Oxford-ſhire*, as it ſtands in reference to Sickneſs or Health. But all *Air* of it ſelf being equally Pure, and only accidentally Good or Bad, accordingly as more or leſs filled with wholſome or noxious Vapors aſcending from the Waters, or moiſt Earths; I refer its conſideration to the next *Chapter*, to which it ſeems more intimately and originally to belong: it being the Opinion of *Hippocrates*, and on all hands agreed, That *Waters* are of much more concernment in reference to *Health* than the *Air* can be, becauſe they are as it were part of our Aliment, and the *Air* not ſo; and may be of themſelves fundamentally Bad, whereas the *Air* is only ſo by participation.

*There is much ſuch another as this, *in the Ball-Court at* Corpus Chriſti College.

[a] *Nat. Hiſt. Cent.* 3. *numb.* 249, 250.

ADDITIONS *to* CHAP. I.

Oxford-ſhire.] In the time of the *Romans*, the People of this County (with thoſe of *Glocesterſhire*) were called *Dobuni*. During the *Saxon* Heptarchy, it was a part of the Kingdom of *Mercia*; and now it makes up the Dioceſs of *Oxford*. [b]

§. 1. *Oxford*, &c.] An *Univerſity*, that for the Statelineſs of its *Colleges*, and the liberal Endowments belonging to it, for the Encouragement of Induſtry and Learning, may be juſtly thought to exceed all other Univerſities in the World. During the common Calamities brought in by the *Saxons* and *Danes*, the Muſes were diſpers'd from this *Univerſity*, and compell'd to ſeek a place for Refuge, till the Learned *Saxon* King *Alfred* (the great Reſtorer of Learning to this Nation) recalled them to *Oxford*, and ſettled them in their Ancient and Peaceable Habitation. Who (as 'tis believ'd) firſt

[b] *Vid.* Gibſon's Camb. Brit. *under the title of* Oxfordſhire.

Founded *Univerſity-College* in the Year 872; and near 400 Years after, *John Baliol* and *Devorguilla* his Wife, were the Founders of *Baliol-College*. In imitation of whom, 16 other Colleges have been ſince Founded, by divers other Patrons and Favourers of Learning, with ample Revenues to maintain the Governors, Profeſſors, and Students thereof.

§. 13. It is reported, that at *Chadlington* in this County, there happen'd a ſtrange Tempeſt of Hail, which deſtroyed all the Corn in ſo grievous a manner, that there was no Profit made of it, and that it broke all the Windows in the Pariſh.

§. 22. *Merſennus*, &c.] *Certiſſimum eſt autem unicam Syllabam a clamante ſatis commode audiri, cum diſtet* 15 *Sexpedis a corpore reflectente: licetque a* 12 *Sexpedis audiri poſſit, non ita tamen commode & diſtincte: quoties vero diſtantiam prædictam* 15 *Sexpedarum multiplicabis, tot Syllabas audies*, v. g. *duas e* 30 *Sexpedis, quatuor e* 60, &c. *vid. ejuſdem Obſervationes Phyſico-Mathematicas*, Tom. 3. Cap. 20. pag. 162.

§. 22. 90 *Pariſian* Feet.] The *Pariſian* Foot (according to Mr. *Newton* *) has the ſame Proportion to the *Engliſh* Foot, as 1068 to 1000, whence 90 *Pariſian* Feet may be found equal to 96 of *Engliſh* Meaſure.

* *Vid. Ejuſdem Phil. Nat. Principia Mathematica, p.* 370.

CHAP. II.

Of the Waters.

THAT *Oxford-ſhire* is the beſt *water'd County* in *England*, though I dare not with too much Confidence aſſert, yet am induced to believe there are few better; ſince beſide the Five more conſiderable Rivers of *Thame*, *Iſis*, *Cherwell*, *Evenlode*, and *Windruſh*, there are numbred no leſs than Threeſcore and Ten at leaſt of an inferior Rank, beſide ſmaller Brooks not worthy notice: And all theſe of ſo quick a Stream, and free from Stagnation, ſo clear, and yet ſo well impregnated with wholſome primogenial Steams of *Salts* and *Sulphurs*, that few (if any) vapid and ſtinking Exhalations can aſcend from them to corrupt the *Air*. As for ſtanding Pools, Mariſh, or Boggy Grounds, the Parents (at leaſt Occaſions) of *Agues*, *Coughs*, *Catarrhs*, they are feweſt here of any place to be found:

found: the Soil for the moſt part lying dry, and water'd only with clear and rapid Fountains. In ſhort, ſo altogether agreeable is this County to *Cardan*'s [c] Rule, *Solum ſiccum cum Aquis currentibus ſalubritatem Aeris efficiunt*, that had he wanted an Inſtance for Confirmation, he might have found one here moſt ſuitable to his purpoſe. And if Plenty of wholſome Fiſh, ſpontaneous Productions of odoriferous Plants, and the Scarcity of filthy *Reptils*, be cogent Arguments of the Goodneſs of *Waters*, Soils, and conſequently of *Air*, as heretofore they have been accounted, I know not any place that can make better pretences, as ſhall be ſhewn more at large in their proper places.

2. Beſide its clearneſs from Peſtiferous Vapors, I imagin the Sharpneſs we find this *Air* to be of, to be no ſmall Argument of its Health and Purity. *Ariſtotle*, 'tis true, thought *Air* moderately warm, but its conſtant Return to a brisk Coldneſs, after it has been heated, either by Fire, the Sun, or warm Exhalations, gives us ſtrong Suſpicions that 'tis naturally cold: All *Natural* Bodies, after they have ſuffered Violence, returning of themſelves to their innate Condition. To which add, that the *Air* on the Tops of high Mountains, above the Reach of the Clouds, and other warm Exhalations, as 'tis found to be clear, ſo 'tis very cold; whence I think it may not be *illogically* concluded, That the colder the *Air*, the nearer to Purity, and conſequently more Healthy: Which is alſo very ſuitable to the Doctrine of *Hippocrates*, who ſpeaking concerning the healthy Situation of Cities, ſays, *That ſuch which are placed to cold Winds,* [d] Πρῶτον μὲν τὰ ὕδατα τὰ σκληράτε ἢ ψυχρά, ὡς ἐπὶ τὸ πλῆθος γλυκαίνεται ----- τὰς δὲ κεφαλὰς ὑγιηρὰς, ἢ σκληράς. i. e. *that though their Waters are harſh and cold, yet for the moſt part they are ſweet, and the Inhabitants healthy and brisk, ſound, and free from Defluctions.* And ſo indeed frequently I find them here, of a very chearful Humour, affable and courteous in their Deportment; neither ſparing, nor profuſe in their Entertainments, but of a generous Temper, ſuitable to the ſweet and healthful *Air* they live in: Whereas the *Inhabitants of Fenny and Boggy Countries, whoſe Spirits are clogg'd with perpetual* Exhalations, *are generally of a more ſtupid, and unpleaſant Converſation.*

3. That the Qualities of *Waters* and Soils, together with the Situations of Places to the reſpective Quarters of the World, make them more or leſs Healthy, according to the

[c] *Comment. in* Hippoc. *de Aere, Aquis, & Locis.* [d] *Hippoc.* περὶ ἀέρων, ὑδάτων τόπων.

great [c] *Hippocrates*, there is no doubt. But to theſe I muſt beg the Favour of adding, not only a more ſwaſive, but more irrefragable Proof; I mean, the great Age and conſtant Health of Perſons that have been lately, and are now living here: *Richard Clifford*, not long ſince of *Bolſcot* in this *County*, died at 114 Years of Age: *Bryan Stephens*, born at *Cherlbury*, but Inhabitant of *Woodſtock*, dyed at 103. Where alſo did live one *George Green* (born at *Enſham*) whoſe Age was above an Hundred Years: at *Kidlington* one Mrs *Hill* was born, and lived there above a Century of Years: and at *Oxford* there was living, a Woman (commonly called *Mother George*) whoſe Age was an Hundred and Twenty Years. The pleaſant Situation of which City is ſuch, and ſo anſwerable to the great Reputation it ever had in this reſpect, that it muſt not by any means be paſs'd by in Silence.

4. Seated it is on a riſing Ground, in the midſt of a pleaſant and fruitful Valley of a large Extent, at the Confluence, and extended between the two Rivers, of *Iſis* and *Cherwell*, with which it is encompaſſed on the *Eaſt*, *Weſt*, and *South*; as alſo, with a Ridge of Hills at a Mile's (or ſomewhat more) diſtance, in the Form of a Bow, touching more than the *Eaſt* and *Weſt* Points with the Ends, ſo that the whole lies in Form of a *Theater*: In the *Area* ſtands the City, mounted on a ſmall Hill, adorned with ſo many *Towers*, *Spires* and *Pinnacles*, and the ſides of the neighbouring Hills ſo ſprinkled with Trees and *Villa's*, that no place I have yet ſeen has equalled the Proſpect *. 'Twas the ſweetneſs and commodiouſneſs of the Place, that (no queſtion) firſt invited *the Great* and *Judicious King Alfred*, to ſelect it for *The Muſes Seat*; and the Kings of *England* ever ſince (eſpecially when at any time forc'd from *London* by *War*, *Plague*, or other Inconveniencies) ſo frequently to remove hither, not only their *Royal Courts*, but the *Houſes of Parliament*, and *Courts of Judicature*: Many *Synods* and *Convocations* of the *Clergy* have been alſo for the ſame Reaſon held here; of which, as they have promiſcuouſly happened in order of time, take the following *Catalogue*.

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[c] *Id. ibid.* * *Ab amœnitate ſitus* Belloſitum *dictum.*

A Catalogue of Parliaments, Councils, and Terms that have been held at Oxford.

A Parliament held at Oxford, *in the time of King* Ethelred, *anno* 1002.

" *A Parliament at* Oxford, *an.* 1013 [f] *and* 1015 [g].

A Parliament at Oxford, *under King* Canutus, *an.* 1018.

A Parliament at Oxford, *under King* Harold Harefoot, *anno* 1036 [h].

A Conference at Oxford, *under King* William Rufus, *anno* 1088.

A Conference at Oxford, *in the time of King* Stephen, *anno* 1140.

A Council at Oxford, *held againſt the* Waldenſes, temp. Henry 2. *anno* 1160.

A Council at Oxford, *under King* Henry 2. temp. Tho. Becket Archiep. Cant. *anno* 1166.

A general Council at Oxford, *at which King* Henry 2. *made his Son* John *King of* Ireland, *anno* 1177 [i].

A Parliament at Oxford, *called* Parliamentum magnum, temp. Henry 2. *anno* 1185.

A Council at Oxford, temp. Rich. 1.

A Conference at Oxford, *in the time of King* John, *anno* 1204 [k] *and* 1206 [l].

A Parliament held at Oxford, temp. Hen. 3. *an.* 1218. *which firſt gave Occaſion to the* Barons *Wars.*

A Council at Oſeney, *under* Steph. Langton *Arch-Biſhop of* Canterbury, *an.* 1222 [m].

A Council at Oxford, *an.* 1227.

A Council at Oxford, *under* Stephen *Arch-Biſhop of* Canterbury, *and his Suffragans, an.* 1230. 14 Hen. 3.

A Council at Oxford, temp. Hen. 3. *an.* 1233.

A Council at Oxford, *under* Edmund *Arch-Biſhop of* Cant.

A Council held at Oxford, *by the Biſhops,* temp. Hen. 3. *an.* 1241.

A Term kept at Oxford, 31 Hen. 3.

A Council at Oxford, temp. Hen. 3. *an.* 1247 [n].

A Council held by the Biſhops at Oxford, *an.* 1250.

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[f] *Vid.* Camb. *p.* 819. [g] *Vid.* Speed's *Chron. p.* 365. *& Chron.* Sax. *p.* 146. [h] *Vid. Chron.* Sax. *in anno, p.* 154. [i] *Call'd a Parliament in* Stow, *p.* 318. [k] Mat. Paris, *p.* 176. *Edit.* Lond. *an.* 1684. [l] *Annales de* Margan, *p.* 14. [m] *Vid. Chron.* Thom. Wikes, *p.* 39. [n] Parliament, *vid. Chron.* Thom. Wikes, *p.* 47.

A Parliament held at Oxford, *called* Parliamentum inſanum, 42 Hen. 3. *an.* 1258[o].

A Council at Oxford, *an.* 1258.

A Parliament at Oxford, *an.* 1261.

" *A Parliament at* Oxford, *an.* 1263[p].

A Parliament at Oxford, *an.* 1264.

A Council at Oxford, *under* John Peckham *Arch-Biſhop of* Canterbury, *an.* 1271.

A Council at Oxford, *an.* 1280[q].

A Council held at Oxford, *under* Robert Winchilſea *Arch-Biſhop of* Canterbury, *an.* 1290.

" *A Council held at* Oxford, *under* Walter Reynold *Arch-*
" *Biſhop of* Cant. *anno* 1322[r].

A Parliament ſummon'd at Oxford, 4 Edw. 3.

A Parliament at Oxford, 19 Novemb. *an.* 1382.

A Parliament at Oxford, 6 Rich. 2.

A Term kept at Oxford, 11 Rich. 2.

A Term kept at Oxford, 16 Rich. 2.

A Convocation of the Clergy *at* Oxford, *by* Tho. Arundel *Arch-Biſhop of* Canterbury, *an.* 1395, *or rather in* 1408[s].

A Parliament at Oxford, 1 Car. 1. 1625.

A Parliament ſummon'd at Oxford, temp. Car. 1. *an.* 1644.

The Terms kept at Oxford, eodem temp. *it being the* King's *Head-Quarters in the late Civil War.*

A Parliament at Oxford, 17 Car. 2. *an.* 1665.

The Term kept at Oxford, eodem temp. *the Plague being then at* London.

" *A Parliament at* Oxford, 33 Car. 2. *an.* 1681.

5. Of theſe there is an imperfect Liſt in a MSS. [t] in *Corpus Chriſti College* Library *Oxon.* in which there are alſo mentioned three *Synods* held in St. *Mary*'s Church 1289[u]. A *Provincial Chapter* of the *Fryar's* Preachers, and a *Council* held at *Oxford*, whoſe Votes were written by *Abraham Woodhall.* There is alſo a *Provincial Council* at *Oxford*, mention'd in the Catalogue ſet before the Decrees of *Gratian.* But theſe bearing no date, and in all likelihood the ſame with ſome of the afore-mentioned, I paſs on to another *Parliament*, which though not at *Oxford*, yet was held in this *County*, and therefore I ſuppoſe not improper for this place. However I ſhall rather venture the Danger of Im-

[o] *Vid. Annal.* Burton. *p.* 407. [p] *Vid. Chron.* Thom. Wikes, *p.* 58. [q] *Vid Chron.* Thom. Wikes, *p.* 109. [r] *Vid. Conſtitut. Provinc.* Lyndwoodi, *p.* 39. [s] *Vid. Conſtitut. Provinc.* Lyndwoodi, *p.* 64. [t] *MSS fol. C. p.* 173. [u] *Vid. Chron.* Thom. Wikes, *p.* 118.

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propriety and miſplacing, then omit the taking notice of ſo conſiderable a *Meeting*, it being the firſt *Parliament* held in the *County*, and doubtleſs in *England*; it was called at *Shifford*, now a ſmall Village in the Pariſh of *Bampton*, and ſhewing now nothing adequate to ſo great an *Aſſembly*.

6. There is a MSS. in Sir *Robert Cotton*'s Library, that gives an Account of this *Parliament*, which, it ſays, conſiſted of the chief of all Orders of the Kingdom, and was called at *Sifford* (now * *Shifford*) in *Oxford-ſhire*, by King *Alfred*, where the *King* as Head conſulted with the *Clergy*, *Nobles*, and others, about the Manners and Government of the People, where he delivered ſome grave Admonitions concerning the ſame: The Words of the MSS. are theſe,

Æt Sifforð ſeten Ðaneȝ manie, ꝑele Biſcopȝ, et ꝑele Boclereð, Eorleȝ ꝑnuðe, et Cnihteȝ egloche: Ðer par Eorle Elꝑricoꝑ ðe lage ſmuth ꝑiꝑe, ⁊ ec Ælꝑred Engleheiꝺ, Engle ðeoꝛling, on Englaⁿð he par Cyng, hem he gan leren, ſpo hi heren mihten hu hi hepe liꝑ leben ſcolðen.

i. e. *There ſate at* Shifford *many* Thanes, *many Biſhops, and many learned Men, wiſe Earls, and awful Knights: there was Earl* Elfrick *very learned in the Law, and* Alfred, England's *Herds-man*, England's *Darling; he was King of* England, *he taught them that could hear him how they ſhould live.*

7. To which perhaps may be added, the great *Council* of *Kirtlington*, held there not long after, *an.* 977, at which were preſent King *Edward* the Martyr, and St. *Dunſtan* Arch-Biſhop of *Canterbury*; and at which died *Sidemannus* Biſhop of *Crediton*. This Council by Sir *Henry Spelman* [w] is taken to be the ſame mentioned by *Wigornienſis* held at *Kirtlinege*, which he gueſſes to be now *Katlage* in *Cambridge-ſhire*; but I rather believe it was held here, not only for the ſake of the Name, which remains the ſame to this Day, but becauſe of the one and only Conſtitution made there, *viz. That it ſhould be lawful for the Country People to go in Pilgrimage to St.* Mary *of* Abington; a thing in all likelihood not ſo deſireable to the People of *Cambridge-ſhire*, as to ours of *Oxford-ſhire*, ſo near the place: Beſide, the great Reputation that this place was of in ancient times, ſeems to juſtify my Plea, it enjoying as great Priviledges, and perhaps being a fitter place, in thoſe Days, for the Reception of ſuch an Aſſembly, than *Oxford* it ſelf; for I find it part of the Poſſeſſions of the Kings of *England*, from whom it came to *Heury*, Son of *Edmund Crouchback*, Earl

* *Vid.* Alfredi *Magni vitam, p.* 94. [w] H. Spelman *Concil. Tom.* 1. *An.* 927. *p.* 493.

of

of *Lancaſter*, and Father to *Henry*, the firſt Duke of *Lancaſter*, by whoſe Daughter and ſole Heir *Blanch*, it came to *John* of *Gaunt*, Duke of *Aquitane* and *Lancaſter*, and was free, a *Thelonio, paſſagio, laſtagio, pacagio, ſtallagio, tallagio, tollagio, cariagio, & terragio, per totum Regnum*, as I find it in an old Charter in the Poſſeſſion of the Right Worſhipful Sir *Tho. Chamberleyne*, Lord of the Town, whoſe ſingular Civilities in imparting this, and ſome other Matters hereafter to be mention'd, I cannot but in Gratitude ever acknowledge.

8. From whence (after ſo long, but I hope not unpleaſant Digreſſion) I return to the Beautiful *Oxford* again, a Place of ſo ſweet and wholſome an *Air*, that though it muſt not be compared with that of *Montpellier*, yet upon my own Knowledge it has proved ſo advantageous to ſome, that it has perfectly recovered them of deep Conſumptions; and particularly a worthy Friend of mine, who though he came hither ſufficiently ſpent, yet without the help of any other *Phyſick*, within few *Months* felt a ſenſible Amendment; and in fewer *Years* became of as Sanguine a Complexion as the reſt of his Friends, that had almoſt deſpaired of him.

9. Some have thought the *Small-Pox* here more than ordinarily frequent, and it muſt indeed be confeſt, That we are perhaps as often, though not ſo ſeverely infeſted as ſome other Places; for generally here they are ſo favourable and kind, that if the Nurſe be tolerably good, the Patient ſeldom miſcarries. But admit the Objection be truly made, That it is more ſubject to the *Small-Pox* than other neighbouring Cities, yet if by ſo much the leſs it feel the Rage of the *Plague*, I think the Edge of the Charge is ſufficiently rebated. 'Tis reported amongſt the [x] Obſervations of an ingenious Perſon that reſided long in the Iſland *Japan*, that though the Air be very ſalubrious there, yet the *Small-Pox* and *Fluxes* are very frequent, but the *Plague* not ſo much as ever heard of; which has often made me reflect on the Year 1665, when the *Peſtilence* was ſpread in a manner all over the Kingdom, that even then, though the Court, both Houſes of Parliament, and the Term was kept at *Oxford*, the *Plague* notwithſtanding was not there at all.

10. Others again tell us of the *Black-Aſſize* held in the Caſtle here, *anno* 1577. when a *poyſonous Steam* broke forth

[x] *Philoſoph. Tranſact. numb.* 49.

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of the Earth, and ſo mortally ſeiſed the Spirits of the *Judges*, *Sherriffs*, *Juſtices*, *Gentry* and *Juries*, beſide great Numbers of others that attended the Buſineſs, that they fell ſick upon it, and almoſt all of them Died: but let it not be aſcribed to ill *Fumes* and *Exhalations* aſcending from the Earth and poyſoning the Air, for ſuch would have equally affected the *Priſoners* as *Judges*, but we find not that they Died otherwiſe than by the Halter, which eaſily perſwades me to be of the Mind of my [y] Lord *Verulam*, who attributes it wholly to the Smell of the *Goal*, where the Priſoners had been long, cloſe, and naſtily kept.

11. 'Tis true that *Oxford* was much more unhealthy heretofore than now it is, by reaſon the City was then much leſs, and the Scholars many more, who when crowded up in ſo narrow a Space, and the then ſlovenly Towns-men not keeping the Streets clean, but killing all manner of Cattle within the Walls, did render the Place much more unhealthy. Hence 'tis, that we find ſo many Reſcripts of our Kings prohibiting *mactationem groſſarum beſtiarum infra muros, & quod vici mundentur a fimis & fimariis*, bearing Date 13 *Hen.* 3. 29 *Edw.* 1. 12 *Edw.* 3. 37 *Hen.* 6. [z] and all alledging the Reaſon, *Quia per has mactationes*, &c. *aer ibidem inficitur*; becauſe by the killing ſuch manner of Cattle, and laying the Dung in the Streets, the Air was infected. Moreover, about theſe times the *Iſis* and *Cherwell*, through the Careleſneſs of the Towns-men, being filled with Mud, and the Common-ſhores by this means ſtopt, did cauſe the Aſcent of *malignant* Vapors whenever there happened to be a Flood; for beſide its ſtirring the infectious Maſs, great part of the Waters could not timely paſs away, but ſtagnating in the lower Meadows, could not but increaſe the noxious putrid Steams. But the former being long ſince remedied by the Care of the *Univerſity*, and the latter by the Piety and Charge of *Richard Fox* Biſhop of *Wincheſter*, and Founder of C. C. C. *Oxon.* who in the Year 1517. cleanſed the Rivers, and cut more Trenches for the Waters free Paſſage [a]; the Town hath ever ſince continued in a healthful Condition: though I cannot but believe, but were there yet more Trenches cut in ſome of the Meadows, the Air might be ſomewhat better'd ſtill, eſpecially during the Winter-Seaſon, when I fear ſometimes Floods ſtay a little too long, and that not only near *Oxford*, but in

[y] *Nat. Hiſt. Cent.* 10. *numb.* 914. [z] *MSS. in Arch. Bib. Bod fol.* 90, 91. [a] *Hiſt. & Antiq. Univerſ. Oxon Lib.* 1. *pag.* 245.

Otmoor; and all along the *Iſis* from *Enſham* to *North-moor*, *Shifford*, *Chimly*, and *Rotcot*, which brings me again to the general Conſideration of the Waters, as well of the whole County as City.

12. That the Healthineſs of *Waters* conſiſts in their due Impregnation with *Salts* and *Sulphurs*, and their Continuance ſo, in their continual Motion, is indiſputably evinced from the ſtinking *Evaporations* of them upon any *Stagnation*. Now that the *Rivers* here abound with theſe, will be altogether as manifeſt as that they run, if we conſider but the *Springs* they receive, and *Earths* they waſh. The *Iſis*, 'tis true, till it comes to *New-bridge*, receives not (that I find) any eminently *Salt* or *Sulphureous Waters*; but there it admits the *nitrous Windruſh*, ſo well impregnated with that *abſterſive Salt*, that no Place yields *Blanketing* ſo notoriouſly White, as is made at *Witney*, a Market-Town on that River, and upon this Account the moſt Eminent in *England* for that kind of Trade; though I am not ignorant, that ſome add another Cauſe, jointly contributing with the afore-mentioned, to the Excellency of theſe *Blankets*; of which more at large when I come to treat of *Arts*.

13. Somewhat lower, about *Caſſington*, it receives the *Evenlode*, a River whoſe Banks, eſpecially near the Fountain Heads, are very well ſaturated with both the *Minerals*: Witneſs the Waters that riſe a little above Sr. *Thomas Pennyſton*'s, in the Pariſh of *Cornwell*, from a ſort of Earth that may well paſs for a *Marle*; and the *briniſh Bog* near *Churchill-Mill*, which, though upon the Surface of the Ground, ſeems to have no Communication with the adjoining *Rivulet*, yet being ſo near, and the Glebe all thereabout being to be preſumed of a like Nature, it muſt needs lick ſome of the *Mineral* in its Paſſage. About *Kingham* I was told of a *Sulphureous* Earth, and that ſome of the *Waters* there were of ſuch an Odour; but whether true or no, I am ſure on the other ſide the Water, at a Place called *Bould* in the Pariſh of *Idbury*, is manifeſtly ſo; which being not far from the *River*, at leaſt not from the *Stream* that runs by *Foſcot*, and ſo into it, in all likelihood may impart to the *Waters* hereabout no mean Quantity of its more *volatile* Parts. Upon the *Cherwell* we have a *Salt Spring* runs immediately into it; and perhaps the *Sulphureous* Glebe of *Deddington* may ſomewhere reach the *River*. The Banks of the *Thame* are ſo well ſated with ſome kind of *Acid*, that no Well-water in the whole Town of the Name,

Name, will either brew, or lather with Soap: But none of theſe give a *Tincture* ſo high, that they can be perceived by the moſt exquiſite Palate, but only ſo far forth as may conduce to a due *Fermentation*, and to keep them Living: And yet without Doubt from hence it is, that the *Thames* Water at Sea, in eight Months time, acquires ſo ſpirituous and active a Quality, that upon opening ſome of the Cask, and holding the Candle to the Bunghole, its Steams have taken Fire like Spirit of Wine, and ſometimes endanger'd firing the Ship [b]. Hence 'tis alſo, that its Stench is no abſolute Corruption, and that after a third or fourth *Fermentation*, it equals the Waters of the Well in the Haven of *Brundiſium* *, and ſtinks no more; and though the Mariners are ſometimes forced to drink it, and hold their Noſes, yet upon that account they do not ſicken; whereas all other *Waters*, (as far as has been hitherto obſerved,) become irrecoverable upon ſtinking, and dangerous to drink.

14. *Cardan* in his Comment upon *Hippocrates* [c], takes the plenty and goodneſs of the Fiſh, to be a ſure Indication of the Wholſomneſs of *Waters*. And our Country-Man, the Ingenious Dr. *Browne* *, ſpeaking of the great Fecundity of the River *Tibiſcus*, admits it into Conſideration, whether its exceeding Fertility may not be aſcribed to the *ſaline Tinctures* it receives from the natural *Salt-Mines* it licks by the way: which Opinions if approved, as rationally they may be, ſhew the Health of our Waters, and the Reaſon of it too: for though we muſt not compare our *Iſis* with *Tibiſcus*, or *Brodrack*; the one whereof is ſaid to conſiſt of *Two parts of Water, and One of Fiſh*; and the other ſo repleniſh'd with them, that in Summer when the River is low, the People ſay, *The Water ſmells of Fiſh*; yet in the Year 1674. it gave ſo ample Teſtimony of its great Plenty, that in two Days appointed for the Fiſhing of Mr. Mayor and the Bayliffs of the City, it afforded betwixt *Swithin's-Wear*, and *Woolvercot-bridge* (which I gueſs may be about three Miles Diſtant) 3000 Jacks, beſide other Fiſh; which great Fecundity, as it argues the Goodneſs of the *Element*, ſo 'tis no whether to be referr'd, as to its original Cauſe, but to the various *Salts*, upon which depend the Propagation of all ſorts of *Species*'s [d];

[b] *Philoſoph. Tranſact. Numb.* 27. *pag.* 495. * *Plin. Nat. Hiſt. lib.* 2. *cap.* 103. [c] *De Aere, Aquis & Locis ſuper Text.* 3. * *General Deſcription of* Hungary, *p.* 10. [d] *Willis, de Ferment. cap.* 2.

and as far as concerns this Part of the *Animal Kingdom*, are plentifully to be found at the Bottoms of ſome Rivers.

15. And I ſaid the rather at the Bottoms of *Rivers*, not only becauſe Bodies from *Salts* have their Solidity and Weight[e], and therefore may well be preſumed to reſide in the loweſt places: but becauſe I find it the joint Agreement of all the *Water-men* hereabout, that I have yet talk'd with, that the *congelation* of our *Rivers* is always begun at the Bottom, which however ſurprizing it may ſeem to the Reader, is neither unintelligible, nor yet ridiculous: for beſide matter of Fact, wherein they all conſent, *viz.* that they frequently meet the *Ice-meers* (for ſo they call the Cakes of Ice thus coming from the Bottom) in their very Riſe, and ſometimes in the under-ſide including Stones and Gravel brought with them *ab imo*, it ſeems upon Conſideration alſo conſonant to Reaſon: for that *congelations* come from the Conflux of Salts, before diſpers'd at large, is as plain as the vulgar Experiment of freezing a Pot by the Fire; and that Induration and Weight come alſo from thence, ſufficiently appears from the great Quantities of them that are always found in Stones, Bones, *Teſtaceous*, and all other weighty Bodies[f]. Now whatever makes things compact and *ponderous*, muſt needs be indued with the ſame Qualities it ſelf, and therefore affect ſuitable places; ſo that why ſtanding Pools ſhould freez at the Top, might poſſibly have proved the greater Difficulty of the two, had not the Learned Dr. *Willis* already cleared the point, by ſhewing us, that all ſtanding Waters are more or leſs in a State of *Putrefaction*[g], with their *ſalts* and *ſulphurs* ready for Flight, and in that Poſture catch'd by the adventitious Cold, are probably ſo *congealed* at the Top of the *Water*. How conſonant to Truth this *Theory* may be, I leave to the Reader's Judgment and future Experience, and by the way would have him take notice, that as this, ſo my other Opinions hereafter to be mentioned, are not Magiſterially laid down, ſo as to juſtle out better whenever they can be brought, but fairly to have their Tryal, and ſo live or dye. But as to the matter of Fact, as I cannot but think it hard that ſo many People ſhould agree in a Falſity, ſo methinks 'tis as difficult they ſhould miſtake in their Judgments, ſince I was told by one of the ſobereſt of that *calling*, that he once knew a Hatchet caſually fall over-board into the

[e] Willis, *de Ferment. cap.* 2. [f] Willis, *de Ferment. cap.* 12. [g] Willis, *de Ferment. cap.* 8.

River

River near *Wallingford*, which was afterwards brought up, and found in one of theſe *Ice-meers*.

16. And ſo much for the *Salts* that give Life to the *Waters*, multiply the *Fiſh*, and are the Cauſe of *congelations*; for the Watry Plants it ſeems have their *Vegetation* from none of theſe, but a higher Principle, which ſome will have to be a *volatile Niter*, brought along with the Showers in their Paſſage through the *Air*. That *ſubaqueous* Plants have a proportionable Growth to thoſe on the Land, after a Shower of Rain, is alſo the general Voice of the *Barge-men*; herein I am the rather inclin'd to believe them, becauſe 'tis a Matter ſo much their Intereſt to obſerve; our *Water-men* here in theſe ſhallow *Rivers*, praying not ſo much for Rain to fill them when low, as that Weeds may alſo grow to help to keep the *Waters* when they have them, which will otherwiſe too ſoon glide away, to their no ſmall Detriment. Some have thought this vigorous ſhooting of the *aqueous* Plants, ſo preſently ſenſible after plentiful Showers, to proceed rather from the Soils brought with them from the Hills, and impregnated with *Salts* fit to promote *Vegetation*, but the contrary is evident from the former *Paragraphs;* for with ſuch as theſe the Rivers are daily ſated, and yet this brisk *Vegetation* is wanting till it rains: whence I gueſs that *terreſtrial* and *ſubaqueous* Plants (not to mention ſuch as delight in *Uliginous* places) have their ſprightful ſhooting from different Principles; and if to the former I ſhould aſſign a more *fix'd*, and to the latter a *volatile Salt*, perchance I might not be much out of the way: but it being not ſo much my Buſineſs to find the Reaſons of *Phænomena*, as to give the Reader ſuch Hints as may lead his greater *Sagacity* to do it; I forbear ſaying more, *& manum de Tabula*, only advertiſing him, that what has been ſaid of the *Iſis*, may be indifferently applyed to the reſt of the greater *Rivers*, of which neither have I any thing more to add, but an unuſual Accident that happened to the *Cherwell*, *An.* $166\frac{2}{3}$, which without one Drop of Rain, or any other viſible Cauſe here, but from great and ſudden Showers, that fell in *Northampton-ſhire*, ſwell'd to that vaſt height, that in Two Hours time, not only the Meadows were o're-flown, *Magdalen-College* Cellar drowned, and their raiſed Water-walks cover'd; but the River *Iſis* driven back as far as *Ivy-Hinckſey*, at leaſt a Mile from the Confluence of the two *Rivers*.

17. But

17. But amongſt the many ſmaller *Rivulets*, perhaps it may not be unworthy notice. (1.) That the two conſiderable *Rivers* of *Stour* and *Ouſe*, though but ſmall here, and running but little way in it, yet riſe in this *County;* the one at *Swalcliff*, which goes into the *Severn*-Sea in the *Weſt;* and the other at *Fritwell*, whence it runs into the Sea between *Lincoln-ſhire* and *Norfolk* in the *Eaſt* of *England*. And (2.) That the Fountain-heads of the River *Rea* lie for the moſt part in a plain Country, having little more to feed them, than juſt a Declivity to facilitate their Paſſage; which ſeems to argue, that all running *Waters* owe not their Continuance to Rain and Dews, collected, as they ſay, on the ſpungy Tops of Hills, and ſent forth again ſomewhere in the Declivity. And ſo does a ſmall Spring at *Cleydon*, that riſes in the Street, on the *South* ſide of the Town, which continues running all the Year, but moſt plentifully, like the *Scatebra* of *Pliny* [h], in the drieſt Weather: to which add a Well at *Ewelme*, alſo *South* of the Church, whoſe Springs run loweſt in the Winter-Seaſon, and advance in the Summer remarkably higher; as I am credibly informed from *Lambourn* in *Berkſhire*, all the Springs in that Town moſt conſtantly do. But I decline all Engagement in this great Controverſy, concerning the *Origin* of Springs, till my Travels have ſupplyed me with more, and more certain Evidences, as well for the one, as other part of the Queſtion.

18. That *Land-Springs*, and ſuch as run but once perhaps in many Years, have their Riſe and Continuance from plentiful Showers, I think we have little Reaſon to doubt, ſince we have them not at all, or but very weak in any Summer, or the dryer Winters: ſuch are thoſe that foretell (and naturally enough) the Scarcity and Dearneſs of Corn and Victuals; whereof that of *Aſſenton*, near *Henley* upon *Thames*, is one of the moſt eminent that I know of in *England;* and no queſtion is the ſame mentioned by *Johannes Euſeb. Nierembergius* [i], in his Book (as he calls it) of the *Miracles of Nature*. *In* Britanniæ *territorio* Chiltrenſi *ſunt Fontes multi*, &c. by which, I ſuppoſe, he muſt mean the *Chiltern* Country of *Oxfordſhire; There are*, ſays he, *many Springs, which in fertile Years are always dry; but before any Defect, as the Harbingers of an approaching Dearth, the Waters get looſe, and as it were breaking Priſon, they quickly unite into a forcible Stream.* And ſo they did lately, in *an.* 1674. with that Violence, that ſeveral

[h] *Nat. Hiſt. lib.* 2. *cap.* 103. [i] *De Miracul. Nat. lib.* 2. *cap.* 26.

Mills

Mills might have been driven with the Current; and had not the Town of *Henley* made ſome Diverſion for them, their *Fair-Mile* muſt have been drowned for a conſiderable time. Of theſe there are many in the County of *Kent*, which, I know not for what Reaſon, they call *Nail-bourns* there, and preſcribe them (ſome will) a certain time for their running, as once in Seven, Ten, or Fifteen Years. But the certain natural Principle of ſuch Springs, altogether depending upon an uncertain Cauſe, no heed is to be given to ſuch kind of Stories, they being equally as vain as the Perſons that broach'd them.

19. Beſide theſe conſtant and intermitting *Rivulets*, that always diſcharge themſelves into Seas or Lakes, we have others here of a peculiar kind, that empty themſelves into neither of them: but as they firſt roſe out of the Earth, ſo preſently after a ſhort Stay on it, ingulf themſelves again, and are no more ſeen. Two of theſe there are at *Shot-over-Foreſt*, both riſing, as I take it, on the *North-ſide* of the Hill; the one not far from *Heddington* Quarry-pits, is conſtantly fed with a double Spring, yet after it has run about two Bows-ſhoot, is received by a *rocky ſubterraneous Indraught*, and appears no more: for though ſome have thought it to come forth again at the Pool of a Mill not far from it, yet, after diligent Search, I could find no ſuch matter. Another there is not far from *Foreſt-hill*, and I think in the Grounds of Sir *Timothy Tyrrill*, which ſometimes in Winter runs with that Violence, and has worn its *In-let* to ſuch a Capacity, that it can and has received an *Ox*.

20. Other *Waters* again are of ſo ſlow a Pace, that they ſeem rather to ſweat than run out of the Earth, part whereof being ſpent in *Exhalation*, and the reſt in ſating the dry neighbouring Earth, do neither reach the Sea, are received in Lakes, nor ſwallowed up like the former, but of themſelves are ſtopt upon the very Surface. And yet I have obſerved, and believe rightly too, that theſe are the moſt durable *Land-ſprings* we have, witneſs that famous One of this Kind at *Nettlebed*, which, I know not from what old *Witch* heretofore, by way of Deriſion, they call *Mother Hibblemeer*; whereas if we conſider how ſerviceable ſhe has been, being never known to fail them in the drieſt Summer, and that in a Country ſo uncapable of Wells, that there's no ſuch thing to be found in the Pariſh, ſhe rather merits the Eſteem of the *Nymph* of the Place.

21. In

21. In *Weſtphalia* they have a Spring they call their *Bolderborn*[k], from a Noiſe that it makes at the *exit* of the Water; whether ours may deſerve that Name I know not, but ſuch a one there is in the Pariſh of *Glympton*, in a Wood about a Mile *South-Weſt* from the Church, in a place where there are Stones in the Farm of Cockles; upon which account hereafter I ſhall mention it again. The *Springs*, as I remember, are in Number three, and the moſt *ſouthern* one of theſe 'tis that has the humming Noiſe, much like that of an empty Bottle held with the Mouth againſt the Wind, which perhaps may be a Reſemblance ſo befitting our purpoſe, that it may help to explain the Cauſe, as well as the Sound: for provided the Channel be large within, and the Paſſage forth ſomewhat narrow like a Bottle, the Colliſion of the Water againſt the Lips of the *Orifice*, may well make a Noiſe in a large Vault within, eſpecially if the Waters be indued with a Spirit, as peradventure hereafter may be proved like enough.

22. Which is all I have to ſay concerning the Flux of *Rivulets*, but that one there is at *Sommerton* makes a ſmall *Caſcade*, or fall of Water about ſeven Foot high; which were it not in the High-way, but in a Gentleman's Garden, ſome uſe might be made on't for divers good purpoſes, but as the Caſe ſtands I think it can have none, except for Experiments of *Petrifications;* for which ſure it cannot but be very excellent, ſince the living Blades of Graſs of not above half a Year's Growth, within that ſmall time are all covered with Stone, and hang down the Bank like ſo many *Icicles;* the Earth it ſelf, over which it glides, as 'twere foliated over with a Cruſt of Stone like the *Moſco petroſo* of *Ferante Imperato*[l]. Which brings me to a cloſer Conſideration of Waters, as they are eminently endued with any peculiar Qualities, of *Petrification*, *Saltneſs*, or *Medicinal* Uſe; of which in their Order as briefly as may be.

23. Of *Petrifying Waters*, though I doubt not but their Kinds are as various, as the Effects they produce; and the Effects again, as the Subjects they work on; yet I am inclined to believe that they all agree thus far, that they proceed in the main from the ſame Stock and Lineage, and are all more or leſs of the Kindred of *Salts*, which ſublimed and rarified in the Bowels of the Earth into an inviſible Steam, are received by the *Waters* as their moſt agreeable *Vehicle*, and brought hither to us at the Riſing of *Springs*, as in-

[k] Varenii, *lib.* 1. *cap.* 16. *prop.* 15. [l] Dell' *Hiſt. Natural. lib.* 27. *cap.* 8.

viſibly

viſibly as the Particles of Silver or Gold, when each is diſſolved in its proper *Menſtruum*: where meeting perchance with an ambient *Air*, much colder and chilling than any under ground, in all likelihood are *precipitated*, and thrown down on ſuch Subjects, as they caſually find at the place of their *exit*, which they preſently cloath with a Cruſt of Stone; or elſe (where *precipitation* or *coheſion* will not ſuffice) they paſs with the *Waters* through the *Pores* of the Subjects, and are left behind in them juſt as in a *Filter*.

24. The reaſon of which Difference may probably be, that ſome of theſe *Petrifying* Steams or *Atoms* may be groſs, and more bulky than ſome others are, and cannot be held up in the Watry *Vehicle*, without ſuch a Heat as they have under ground, but fall, and by reaſon of their Bigneſs, do not *penetrate*, but *adhere* to their Subjects; whereas others that are fine, more minute and ſubtile, are eaſily ſupported in a *Volatile* condition, and paſs with the Waters into the cloſeſt *Textures*.

25. If any body doubt whether Stones, and ſo *Petrifications*, ariſe from *Salts*, let him but conſult the *Chymiſts*, and ask, whether they find not all *indurated* Bodies, ſuch as Stones, Bones, Shells, and the like, moſt highly ſated with the *ſaline* Principle? Some Mixture of *Earth* and *Sulphur* 'tis true there is in them, which give the *Opacity* that moſt Stones have; from which, according as they are more or leſs free, they have *proportionable Tranſparency*, and ſome Hardneſs too; as the beſt of Gems, the *Diamond*, evinces. And if he ſhall ask what *Salts* are the apteſt to perform this Feat of *Petrification*, though the Diffiiculty of the Queſtion might well excuſe me, yet I'le venture thus far to give him an Anſwer: That I have frequently ſeen at *Whitſtable* in *Kent*, how their *Copperas* or *Vitriol* is made out of Stones, that 'tis more than probable were firſt made out of *that*: to the Spirit of which *Vitriol* if you add Oyl of *Tartar*, they preſently turn into a fix'd and ſomewhat hard Subſtance, not much inferior or unlike to ſome *Incruſtations*; which ſeems to conclude, that from theſe two, all ſuch like *Concretions* are probably made. To which I alſo add in the behalf of *Vitriol*, what's Matter of Fact, and prevails with me much, That where-ever I find ſtrong *Vitriolick* Waters, the *Petrifying* ones are ſeldom far off; which as far as I have obſerved, I believe may be reduced to theſe three Kinds that preſently follow.

1. Such as purely of themſelves are *Petrifyed*, the very Body of *Water* being turned into Stone as it drops from the Rocks, which we therefore call *Lapides ſtillatitios*, and ſhall accordingly treat of them in the *Chapter of Stones*, theſe not ſtrictly coming under *Petrifications*, where beſide the *Water* and *ſaxeous Odour*, there is always required a Subject to work on of a diſtinct *Species* from either of the two; as in
2. Such as *Petrify* by *Incruſtation*, and are only ſuperficial, or
3. Such as *Petrify per minima*, or *totum per totum*; of both which I ſhall inſtantly treat, but of the laſt more at large in the following Chapter.

26. *Incruſtations*, are *Petrifications* made by ſuch *Waters* as let fall their ſtony Particles, which becauſe either of their own Bigneſs, or cloſeneſs of the *Pores* and *Texture* of the Body on which they fall, are fixt only to the *ſuperficial parts*, as it were, by *Aggregation*, and do not enter the ſolid Body; of which I have met with ſeveral in *Oxford-ſhire*, and particularly at *Sommerton*, as was above-mentioned, where the Graſs, being one of the *fluviatilia*, is covered over with a ſoft Stone; and yet ſo, that broken off, the Graſs appeared (for any thing I could ſee) as freſh and green as any other not *cruſted*, nothing of the Blade being alter'd or impaired, which is the meereſt *Incruſtation* I ever yet ſaw: for though ſome of theſe *Petrifyed* Blades of Graſs hung down at leaſt a Foot in length, yet ſlipping them off from about the Root, I could take the Graſs by the End, and pull it clean out as it were from a Sheath of Stone, ſo little of *coheſion* had the one to the other: the reaſon of which I gueſs may be, that the *Pores* of the Plant poſſeſt with its own Juice, and already furniſh'd with a *congenial Salt*, might well refuſe *adventitious* ones.

27. And yet far otherwiſe is it, but juſt on the other ſide the River, at *North-Aſhton*, in a Field *North-Weſt* of the Church, where either the *Petrifying* Water, or Plants, are ſo different from what before I had found them at *Sommerton*, that though there too the Work be begun by *Adheſion*, yet the Roots of *Ruſhes*, *Graſs*, *Moſs*, &c. are in a while ſo altogether eaten away, that nothing remains after the *Petrification* is compleated, but the Figures of thoſe Plants with ſome Augmentation.

28.

28. And *Petrifications* of this kind I frequently meet with, that happen on things of much different Subſtances, as *Shells*, *Nuts*, *Leaves of Trees*, and many times on their moſt *ligneous* Parts. In the Pariſh of St. *Clements* in the Suburbs of *Oxford*, about a quarter of a Mile diſtant on the right Hand of the firſt Way that turns *Eaſt-ward* out of *Marſton-Lane*, there is a Ditch, the Water whereof *incruſtates* the Sticks that fall out of the Hedge, and ſome other Matters it meets with there: but this is ſo inconſiderable, that I ſhould not have mentioned it, but that it has been taken Notice of by ſo many before, that my Silence herein would have looked like a Defect. Much better for this Purpoſe is the Water of a Pump at the *Croſs-Inn* near *Carfax*, in the City it ſelf, which not only *incruſtates* Boards fallen into it, but inſerts it ſelf ſo intimately into the Pores of the Wood, that by degrees rotting it away, there is in the end the Succeſſion of a perfect Stone; and that not without ſome courſe Repreſentation of the very Lineaments of the Wood it ſelf: which though I muſt confeſs to be of ſomewhat a higher kind of *Petrification* than *Incruſtation*, yet it being wholly performed by Acceſſion of Parts, and continual Intruſion into the open Pores of rotten Wood, will not amount to the Warranty of a different *Species*.

29. A curious Pattern I have of this kind, in a Piece of Wood given me by Mr. *Pomfret* School-maſter of *Woodſtock* (whoſe Care in my Enquiries I muſt not forget) wherein Nature has been ſo ſeaſonably taken in her Operation, that the Method ſhe uſes is eaſily diſcovered; for being interrupted in the midſt of her Work, one may plainly ſee how the ſtony *Atoms* have intruded themſelves, as well at the *Center* as *Superficies*, and ſo equally too into all Parts alike, that 'tis hard to diſcern in any part of it, whether Stone or Wood obtain the better Share.

30. *Petrifications* of this kind are always *Friable*, and though ſometimes they faintly ſhew the Grain, yet never, that I could ſee, keep the Colour of the Wood; in the Fire they are as *incombuſtible* as any other Stone, and loſe nothing of their Extenſion, but their Colour for the moſt part ſeems to alter toward White: in diſtilled Vinegar they remain *indiſſoluble*, though not without the Motion (as Mr. *Hook* [m] well obſerves) that the ſame Spirit has when it corrodes *Corals*, yielding many little Bubbles, which in

[m] *Micrograph. Obſ.* 17.

all Probability (as he ſays) are nothing elſe but ſmall Parcels of Air driven out of its Subſtance by that inſinuating *Menſtruum*, it ſtill retaining the ſame Extenſion: but in *Aqua Fortis*, the *Sommerton* Cruſt was wholly diſſolved into a White Subſtance, not unlike the *White-Waſh* uſed by *Plaiſterers*. All of them increaſe the Bulk of the Subject on which they work; and moſt of them, as the ingenious Mr. *Hook* alſo further notes, ſeem to have been nothing more but rotten Wood, before the *Petrification* began.

31. But ſome others I have ſeen of a far nobler Kind, that ſhew themſelves likely to be *Petrifications per minima*, and performed with a Steam ſo fine, as *permeates* the very *Schematiſm* and *Texture* of the Body, that even to a *Microſcope* ſeems moſt ſolid, and muſt in all likelihood be as *tenuious* as the ſubtileſt *Effluviums* that come from a *Magnet*; ſome whereof are ſo unlike rotten Wood, that they keep the Colour and *Texture* of Heart of Oak, and are ſome of them ſo hard that they cut Glaſs: and with one of them, that ſeems formerly to have been a Piece of *Ground-Aſh*, I ſtrook Fire to light a Candle whereby I write this. But I have nothing more to ſay of it here, becauſe I gueſs the Change not to have been wrought by *Water*; that therefore I offer not Violence to the Chapter of *Earths*, by which I think this, and all other of the Kind, I have met with in *Oxford-ſhire*, have been perform'd; I forbear, and proceed to the other *Salt-waters* that are more eminently ſuch, and do not *Petrifie*.

32. And amongſt *them*, we muſt remember to reckon all ſuch as are unfit for *Waſhing*, and will not take *Soap*; for though theſe to our Taſte are not ſenſibly *Salt*, yet to our Touch (as the Learned *Willis* [n] notes) they are harſh and unpleaſant, which they have from their too great *Impregnation* with *Salts*: But what is much more certain Evidence of it, we do not find any but inſtantly *lathers*, except ſuch as hold an *Acid Salt*, and diſcover themſelves ſuch upon *Evaporation*. To which may be added this very eaſie Experiment, That if to ſimple Water, and ſuch as before would *lather* well, you add ſome few Drops of Spirit of *Vitriol*, or ſome ſuch like *Acid*, it preſently refuſes to mix with *Soap*: The Reaſon of which ſeems indeed to be no other, but the Congreſs of the *Acid Salt* of the *Water*, with the *Fix'd* and *Alcalizate* one of the *Soap*, which it ſo wholly ſubdues to its own Inclinations, that it will not per-

[n] *De Ferment. cap. 9.*

mit

mit it any longer to hold the oily parts of the *Soap*, or mix them with the *Water*; but now viſibly increaſed both in Quantity and Weight, by the conſiderable *Acqueſt* of this new *Priſoner*, it may alſo perhaps ſo fill up the *Pores* and little Cells of the *Water*, that the excluded *Sulphur* or oily parts of the *Soap* (as in their ſeparate Nature) are forced to the Surface.

33. Many of theſe Waters are every where found, and according to ſome, all *Pump*-Waters are ſuch; but that they are miſtaken, my Experience has taught me, for I have met with ſome that will *lather* very well.

34. At *Henley* they are troubled with many of them, but not ſo much as they are at *Thame*; for there they have a way to let them ſtand two Days, within which time (as I was informed by my worthy Friend Mr. *Mundy*, Phyſician there) the *Vitriol*, or whatever other *Acid* it be, falls down to the Bottom of the Veſſels that hold them, and then they will waſh as well as one can deſire. But at *Thame*, where there is never a Well in the whole Town whoſe Water will waſh, or (which is worſe) brew; This Experiment, (for I cauſed it to be tryed,) will by no means ſucceed; ſo that were they not ſupplyed by the adjoining Rivulet, the Place muſt needs be in a deplorable Condition. The Reaſon, I ſuppoſe, why the *Acid* will not fall, as it does at *Henley* and ſome other Places, is becauſe the Waters, beſide their Salt, in all Probability alſo hold a crude *Sulphur*, whoſe viſcous Particles do ſo tenaciouſly embrace it, that it will not admit of any Separation; which may alſo perhaps be a Hint to the Cauſe, why their Beer will ſtink within fourteen Days, whenever they attempt to brew with this *Water*, for where a *Sulphur* is any thing great in Quantity, and its Body opened and exalted by the Heat in brewing, and the active ſpirituous Particles of Mault, (as I gueſs the Caſe may have it ſelf here) the Frame of that *Mixtion* may probably be looſed, wherein the *Spirits* firſt taking their Flight, the *Sulphur* will next begin to *Evaporate*, whoſe Steams being ſmartly *aculeated* by the *Salt*, that then bears the chief Sway in the Subject, cauſe the Stink of the Beer that is brewed with ſuch Water.

35. Other Waters there are that are palatably *Salt*, and ſufficiently ſtinking without being brewed, and ſuch is that before-mentioned near *Churchill*-Mill: but I think within the Bounds of the Pariſh of *Kingham*; The Water as it ſtands

ſtands looks of a greeniſh Colour, as moſt of the palatably *Salt* Waters do, and to it reſort all the Pigeons in the Country; which ſhould they not do, I ſhould much wonder, ſince, beſides it Saltneſs, it has ſuch a ſtink, that it equals the *Salt Stone*, and *roaſted Dog* too: ſo that ſhould the *Proprietor* but build a Dove-houſe here, he might honeſtly robb all his Neighbours of their Flights; but that he may not put it to ſo invidious a uſe, I ſhall divert him hereafter by a more profitable way.

36. As to the *Salt* that impregnates this *Water*, I do not take it to be a ſimple one, but ſome Mineral *Concrete*, both of *Salt* and *Sulphur*; for without theſe two be in their Exaltation, and become ſo far fluid as to endeavour a Divorce from each other, it could never acquire ſo noiſome a Smell. Which *Concrete* ſhould I call a *ſalt Marine*, peradventure I might not be much miſtaken; for if you take but a ſmall Quantity of thrice calcined *Bay-Salt*, and diſſolve it in a Pint of Well-water, upon Diſſolution you will have much ſuch an Odour, as has been obſerved by a late Author in a ſhort account of the *Sulphur*-Well at *Knarsborough*°.

37. Nor hinders it at all that the *Sea* is ſo remote, ſince whether *Springs* have any Communication with it or no, ſuch *Marine Salts* may be had very well; for if the *Sea* grow *ſalt* by the Earth that it licks, which I take to be as certain as that 'tis not ſo by *Torrefaction*; then if it be poſſible we may have ſuch Earths, as give the *Sea* thoſe *Salino-Sulphureous* Tinctures, its altogether as poſſible we have ſuch *Waters* too, without any Neceſſity of ſuch Communication.

38. If it be objected, That the *Waters* of the *Sea* ſend forth no ſuch Stench as we find theſe do, let it be conſidered, that the Flux of the one, and Stagnation of the other, may well occaſion ſuch a Difference; whilſt the *Sea-Waters* are in their Motion, 'tis true their *Salts* and *Sulphurs* ſo involve one another, that their mutual Embraces hinder all *Evaporations;* but whenever they come to ſtand but a while, as they do moſt times in the Holds of Ships, then their *Sulphur* evaporates with as great a Stink, as can be ſuppoſed ours have here at Land; and this the Ship's Pump doth frequently Witneſs, to the great Content of all that travel by *Sea*, it being a ſure Indication of the Ship's Health, which abundantly recompences the Inconvenience of the Stench.

° Simpſon's *Hydrolog. Chym. part.* 2.

39. Such

39. Such another I have heard of in the Pariſh of *Chadlington*, in the Grounds of one Mr. *Rawliſon* there, not differing in any thing at all from the former, but only it's ſomewhat ſtronger of the *Marine-ſalt*: this I muſt confeſs I ſaw not my ſelf, yet having my Information from ſo knowing a Perſon, and of ſo unqueſtionable Fidelity as Sir *Thomas Pennyſton*, I doubt not at all the Truth of the thing.

40. A *Salt-ſpring* there is alſo at *Clifton* near *Deddington*, within a Quoits-caſt of the *River* ſide: but its *ſaline* Particles are ſo ſubtilized in the *Water*, that they can ſcarcely at all be perceived by the Palate, and yet it lays them down plentifully enough on the Stones and Earth over which it paſſes. What ſort of *Salt* this is I care not to determine, becauſe it will be difficult not to miſtake; for upon *Evaporation* of about a Galon, it yielded a *Salt* of a *Urinous* Taſte: which at firſt I muſt confeſs was ſo ſurprizing to me, that I could not but think, that during my abſence, ſome waggiſh Fellow had either put a Trick on me, or elſe that I might have uſed ſome unfit Veſſel; whereupon I cauſed a new Earthen Pot to be bought, well glazed, and then repeated the Experiment very carefully, but found in the end all had been honeſt about me, for I had a *Salt* again of the very ſame Taſte.

41. How this ſhould come about I cannot divine, unleſs from the Sweat of the Bodies of *Animals*, it being much uſed in *Cuticular* Diſeaſes; but this I think neither can well be, becauſe 'tis a conſtantly running *Spring*, and would ſure carry off what might be left of that Nature: I therefore wholly leave it to the *Reader's* greater Perſpicacity, and ſhall content my ſelf with this Satisfaction, that however improbable the thing may ſeem, that in the mean-time 'tis an improbable Truth.

42. I have often ſince wiſh'd, that I had tried this *Water* with a Solution of *Allum*, and ſeen whether it would have given any thing of that Milky Precipitation it does with *Urines*; which being then quite out of my Head, is left to the Tryal of ſome ingenious Perſon that lives thereabout; though before-hand I muſt tell him, that I believe it will not ſucceed, becauſe the *Urinous* Subſtance ſeems not to be copious enough.

43. Divers might be the Uſes of theſe *Waters*, and particularly of the two firſt, as good, or perhaps better than that at *Clifton*, for *cuticular* Diſeaſes of Men and Beaſts; ſome whereof

whereof I have known carried out of the Inland *Countries* to the *Sea* ſide; whereas 'tis likely they might (in all the Diſtempers for which we have Recourſe thither) with much more eaſe have had a Remedy at home.

44. But far more profitable muſt they ſurely be, if imployed to improve poor and barren Lands, which no Queſtion might be done by caſting them on it. In *Cheſhire* [p], near the *Salt-pits* of *Nantwich*, 'tis yearly practiced thus to *brine* their Fields; which though never done, but after the Fall of great ſtore of Rain-waters into their *Pits*, which before they can work again muſt be gotten out, and with it ſome Quantity of their *Brine* too, yet even with theſe, but brackiſh Waters, do they ſo ſeaſon their adjoyning Lands, that they receive a much more profitable return, than they could have done from any Soil or Dung.

45. In *Cornwall* and *Devonſhire*, ſo conſiderable are their Improvements by *Sea-ſand*, that it is carried to all parts, as far as they have the Advantage of the Water, and afterwards 10 or 12 Miles up higher in the Country on Horſes Backs: At which I muſt confeſs I marvel not at all, ſince we are informed by an intelligent *Gentleman* of thoſe parts [q], that where-ever this Sand is uſed, the Seed is much, and the Straw little (*I have ſeen*, ſays he in ſuch a Place, *good Barley, where the Ear has been equal in length with the Stalk it grew on*) and after the Corn is off, that the Graſs in ſuch places turns to *Clover*. Some of the beſt of this Sand, he ſays, lies under *Ouſe* or Mud about a Foot deep; and who knows but there may be ſuch a Sand under the briny Bog near *Churchill*-Mill, or at *Chadlington*? I am ſure the *Salt-ſpring* at *Clifton* comes from a Sand; if ſo, and the Farmers thereabout get ſuch Corn and *Clover-graſs*, I hope I ſhall not want the Thanks of the Country.

46. However, I do not doubt but the Water will be ſerviceable, either to caſt on their Land, as at *Nantwich*, or to ſteep their Corn in before they ſow it, to preſerve it from all the Inconveniencies formerly prevented by Brining and Liming it, and to ſtrengthen it in its Growth.

47. Sir *Hugh Plat* [r] tells us of a poor *Country-man*, who paſſing over an Arm of the *Sea*, with his Seed-Corn in a Sack, by miſchance at his Landing fell into the Water, and ſo his Corn being left there till next *Ebb*, became ſomewhat brackiſh; yet ſuch was the Neceſſity of the Man, that (not-

[p] *Sir* Hugh Plat's *Jewel-houſe of Art and Nature, cap.* 104. [q] *Philoſoph. Tranſact. Numb.* 113. [r] *Id. loco citato.*

with

withſtanding he was out of all hope of any good Succeſs, yet not being able to buy any other) he ſowed the ſame upon his plowed Grounds; and in fine, when the Harveſt-time came about, he reaped a Crop of goodly Wheat, ſuch as in that Year not any of his Neighbours had the like.

48. Now let the Owners or Farmers of theſe *Springs* ſit down and conſider of what has been ſaid, and if they ſhall think fit, make Tryal of them, wherein, if they meet with Succeſs, I only beg of them, (which I ſhall gladly accept, as the *guerdon* of my Labours) that they would be as free of it to their poor Neighbours, that have lean Grounds, and ill Penny-worths, as *God* has been to them by me his weak Inſtrument in the Diſcovery.

49. Having ſpoke of ſuch *Waters* as cure faulty Grounds, and cuticular Diſtempers by external Application, it followeth, that we treat of ſuch as are, or may be taken inwardly, and deſerve the Repute of *Medicinal Waters*. The firſt, and perchance the beſt of theſe, I found at *Deddington*, a ſmall *Market-Town*, within the Cloſe of one Mr. *Lane*, where not long ſince digging a Well, and paſſing through a Blue Clay, adorned with ſome glittering ſparks; and meeting by the way with *Pyrites Argenteus*, and a Bed of *Belemnites*, or (as they call them) Thunder-bolts, he came within few Yards to this Water, of a ſtrong *ſulphureous* Smell, the moſt like of any thing I can think of, to the Water that has been uſed in the ſcouring a foul Gun: in Weight lighter than pure Spring-water by an ℥ſs. in a Quart, and yet after ſeveral Tryals, I found it ſo highly impregnated with a *Vitroline Salt* as well as *Sulphur*, that two Grains of the Powder of *Galls* would turn a Gallon of *Water* into a dusky Red, inclining to Purple; nor did they only ſo alter the *Site* and Poſition of the Particles, as to give a different Colour and Conſiſtence, as it happens in *Waters* but meanly ſated; but in a quarter of an Hour did ſo condenſe and conſtipate the Pores of the watry *Vehicle*, that the excluded Particles of the *Minerals* appeared in a ſeparate ſtate, curdled in the Veſſel, and of ſo weighty a ſubſtance, that they ſubſided to the Bottom in a dark Blue Colour.

50. The ſediment being great in quantity, I tried upon *red-hot Irons*, and ſome other ways, to ſee whether the *Salts* or *Sulphur*, either by Colour, Scintillation, or Odour, might not by that means betray themſelves; but with ſmall ſucceſs: whereupon I betook me to *Diſtillation*, putting about a Quart into a Glaſs *body*, to which fitting a Head

and clean Receiver, I gave an eaſy heat, till there was diſtilled off about three or four Ounces, which when poured out, I found had neither Smell, Taſte, or any other Properties, that might diſtinguiſh it from any other *Spring-water* diſtilled: for with Galls it would make no more Alteration than any other *ſimple common Water* would. Then ordering the Fire to be ſlackned, to ſee what *Precipitate* it would let fall; upon *Filtration* of what remained in the *body*, I procured only a pale *Calx* of a gritty Subſtance, ſhewing, as it dried in the *Sun*, many tranſparent Particles intermix'd: in Taſte it had a faint pleaſant piercing, with a gentle warmth diffuſed on the Tongue; but pouring on it *Spirit of Vitriol, Oyl of Tartar, &c.* I could not perceive any manifeſt Ebullition, ſo as to judge whether the *Salt* contained in this reſidence, were either of the *Acid* or *Lixiviate* kind.

51. Wherefore to come cloſer to the point, and taking Directions from that *accurate, ſevere, and profound Philoſopher*, the Honourable *Robert Boyle* Eſq; the Glory of his Nation, and Pride of his Family; and to whoſe moſt ſignal Encouragement of the Deſign in hand, theſe Papers, in great part, owe their Birth: I took good *Syrup of Violets*, impregnated with the Tincture of the Flowers, and drop'd ſome of it into a Glaſs of this *Water* as it came from the Well; whereupon, quite contrary to my Expectation, not only the *Syrup*, but the whole Body of the *Water* turned, not of a Red, but of a brisk Green Colour, the Index of a *Lixiviate*, and not that *Acid Vitriol*, which I before had concluded on from the Infuſion of *Galls*. The *Phænomenon* at firſt was very ſurprizing, till I had further weighed the cautious Expreſſions of that *Noble Author*[s], and found, that he reſtrains the Experiment of the *Syrup of Violets*, turning Red with *Acids*, with proviſion always they be diſtilled Liquors; and what he ſeems to hint in a former Experiment *, that *ſulphureous Salts*, (ſuch as the *Vitriol* of this Water will hereafter more plainly appear to be) being of a quite contrary Nature, may have different Effects: which may alſo be the reaſon why this *ſulphureous Water*, notwithſtanding it moſt certainly poſſeſſes an *Acid Salt*, will yet as certainly lather with *Soap*, and raiſe a greater *Sud* than any other Waters commonly do; and if put into *Milk*, though boiled up to the height, will not ſeparate the more groſs from the *ſerous* parts of it: *Effects* ſo uſually following upon ſuch Applications, that perhaps till now they have

[s] *Hiſt. of Colours, Exper.* 20. * *Ibid. Exper.* 10.

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always been ſuppoſed, never as yet to have happened otherwiſe.

52. But *Experience*, that great Baffler of *Speculation*, aſſures us the contrary to be poſſible enough, and brings Matter of Fact to confute our Suppoſitions in the very Trial of this *Water*, wherein the great Quantity of *Vitriol*, is yet ſo cloſe lock'd up by the viſcous Particles of *Sulphur*, and thereby rendered ſo dull and unactive, that it cannot exert its Enmity to, (as Dr. *Mayow* [t]) or friendly Embraces with, (as Dr. *Willis* [u]) the *Alcalizate-ſalt* it finds in the *Soap*; or ſo compreſs the Pores of the *Milk*, as thereby to cauſe a *Precipitation*: but having as it were thus put on the Nature of a *fix'd Salt*, acts not upon its like, nor longer enjoys the aſtringent Power of an *Acid*.

53. And under this Vizor of a *fix'd Alcali* it was, that it acted its part, and with *Syrup of Violets*, gave a Green Tincture; unleſs we may allow its Salt to be a *Volatile Alcali*, with which alſo that *Syrup* turns to the ſame Colour: to admit ſuch a Thought 'tis true is very hard, yet finding but a Mile off, at *Clifton* as abovementioned, a *Spring* ſtrangely ſated with ſuch a Kind of *Salt*; I adventured to try another Experiment of the aforeſaid *Honourable Author*, and according as he directs [w], made a Solution of *Sublimate* in fair Water (the only *Criterion* I yet know of, that plainly diſtinguiſhes the two *Alcali's*) to which I added this Well-water, in great, ſmall, and the intermediate Quantities; but it anſwer'd not at all the Deſign of the *Experiment*, not giving the Tawny, much leſs the White *Precipitate*: Whence 'tis eaſy to conclude, that this alſo ſucceeds only in diſcriminating *Chymical Salts*, as that great *Virtuoſo* well obſerves, and not in the immediate Products of Nature.

54. One thing more I could not but obſerve, that notwithſtanding the Powers of the *Vitriol* are thus reſtrained, in reference to its acting on *Soap* and *Milk*, that yet it has its uſual Effect upon *Iron*: for the Corroſion of the Pump-rod I muſt believe to proceed from *Vitriol*, till any one upon better grounds can convince me, that 'tis likely it may be from ſomewhat elſe; and yet this neither do I conceive to be done, but by ſuch Steams as aſcend in the Well, and are freed from the Shackles of *Sulphur*, much queſtioning

[t] *De Thermis Bathonienſibus, ſub finem.* [u] *De Ferment. cap.* 11. [w] *Hiſt. of Colours, Exper.* 40.

whether the Pump-rod under, or near the Bottom of the Water, be eaten ſo or no.

55. To this add, that although the *Sulphur* does exerciſe ſuch Dominion over, and ſo cloſely knits up the *Vitriol*, whilſt together in the *Water*, yet it may, and does too, let go its Hold; and like what is reported by *Henricus ab Heers* of his *Spadacrene*, and the *Sauvenir* by *Frambeſarius*, can hardly be kept within any Bounds, but expires through Glaſſes ſtopt never ſo cloſe: 'tis true, I had not the Conveniency there of putting it under the *Hermetick Seal*, but ſo eaſy a Paſſage it made through a good Cork covered over with Wax, and both bound down with a double Leather, that in ſix Miles riding it loſt all its Virtues, not giving then any Tincture with *Galls*, and having but a faint putrid Smell of the *Sulphur*: Whether it loſt in Weight or Bulk, as well as *Volatile Spirits*, I muſt acknowledge I was not then enough curious to obſerve: but imagine it might, ſince 'tis plain from its not tinging with *Galls*, that not only the *Sulphur*, but alſo the *Vitrioline* Particles exhale with it', and corporeally ſeize on the next agreeable ſubject, which 'tis manifeſt they did on the above-mentioned Pump-rod.

56. Beſide the more conſiderable Ingredients of *Vitriol* and *Sulphur*, 'tis evident that this *Water* alſo holds ſome ſmall Quantity of *Naphtha*, one of the liquid *Bitumens*, which flies not away like the two former, but after Separation of the Parts, made either by *Precipitation* with *Galls*, or inſenſible *Evaporation*, remains ſwimming on the Top in a thin Skin, variegated as it were with the Colours of the Rain-bow, much after the ſame manner as 'tis frequently ſeen upon Waters ſtanding in boggy Grounds, or ſuch Places where we dig the *Bituminous Earths* called *Peats*: But whether this will burn at all, or with any ſuch bright Flame exceeding that of *Sulphur*, as [x] *Hen. ab Heers* affirms of ſuch a Film that covers the Waters of his *Spadacrene*, if kept all Night, I have left to ſome ingenious Perſon thereabout, that has both more Skill and Leiſure to try.

57. At *Banbury*, another *Market-Town* about four Miles hence, at Dr. *Lane*'s Phyſician there, Brother to the above named Mr. *Lane* of *Deddington*, and my very good Friend: there is alſo another *Sulphur*-Well, much like the former in Taſte, but not altogether of ſo ſtrong a Smell, holding,

[x] *Hen. ab Heers Spadacrene, cap. 4.*

I ſup-

I ſuppoſe, either much more *Salt* than that, or a leſs tenacious *Sulphur*: for here I found not the Energy of the *Vitriol* ſo fetter'd by the vigorous Particles of *Sulphur*, but that it had Power to make that hoſtile or friendly Congreſs with the *Lixiviat Salt* of *Soap*, and ſend the Oily Part to float at Top, making no Lather or Mixtion with it; and alſo ſo to conſtipate the Pores of boiled *Milk*, as to ſeparate its Parts into Curds and Whey. The quantity of *Salt* appeared upon Evaporation made by the ſaid Dr. *Lane* ſince I was there, but how much to a Quart or Gallon he ſent me no Word. This *Water* has alſo a *Volatile* Part, collected by the ſaid Doctor, which I did not find that *Deddington Water* had; upon the Tongue it ſeems to have a little Pricking, but nothing that I could perceive of a Saltiſh Taſte, wherefore trying further with a convenient *Menſtruum*, it at laſt confeſt it ſelf to be *Flores Sulphuris*, *Precipitating* with the ſame Ebullition, Smell, and Colour, that ſome others did I had from the Shops.

58. Another of theſe of a *Sulphureous* Smell that will not take *Soap*, and turns *Milk*, I found at *Bould* in the Pariſh of *Idbury*, in part of the Poſſeſſions of one Mr. *Loggan*, a worthy Gentleman, (whoſe Aſſiſtance in the Trial of this *Water*, and Furtherance in my other Buſineſs, I cannot without Ingratitude ever forget:) which differs from the former only in this, that beſides its tinging Red with Powder of *Galls*, with Spirit of *Urine* it turns White, which (as I had obſerved before at *Banbury*) that would not do: whence I have ground to ſuſpect, that over and beſide the Ingredients of that, here muſt in all likelihood be ſomething of *Alum*; and in this Opinion I am the more confirmed, ſince I am informed, by the Controverſy between Dr. *Wittie* and Mr. *Sympſon*, that *Vitriol* and *Alum* are ſometimes found together, as in the Cliff near the *Scarborow-Spaw*. And that in *Sweden* [y] there is a ſingle Stone of a Yellow Colour, intermixed with Streaks of White, and very weighty, that affords *Sulphur*, *Vitriol*, *Alum*, and *Minium*; now that ſuch a Stone is here, though I dare not aſſert, yet queſtionleſs there may be ſomething not ſo altogether unlike, but whenever there is Occaſion of digging there-about again, the Stones and Earth may deſerve Examination *.

[y] *Philoſoph. Tranſact. Numb.* 21. *Vid.* Olai Wormii, *Muſæum de eodem, cap.* 9. * *At* Snowdown-hill *in* Carnarvan-ſhire, *there are alſo ſuch Stones.* Dr. Merret's *Pinax rerum Nat. p.* 217.

59. I ſhould next have proceeded to the *Waters* impregnated with *Vitriol* only, but that I am called back to *Deddington* again by another *Water* of a fetid Odour, in Stench much exceeding all before-mentioned. This I met with in a ſmall Cloſe behind a Barn, within a Furlong or leſs of that at Mr. *Lane*'s, having the Houſe where the *Dutchy-Court* is kept to the Eaſt, and the *Guild* Weſt, and belonging to *Ch. Ch. Coll.* in *Oxon*, in Smell ſo perfectly reſembling that of *Rotten-Eggs*, and accordingly ſo ſtrongly affecting the Senſe, that I could not ſo much as put it to my Mouth without Danger at leaſt of ſtraining to vomit. Such a one as this is mentioned by *Georgius Agricola* [z], at the Caſtle of *Steurewald* in the Biſhoprick of *Hildeſheim*, within a Mile of *Haſda*; where, ſays he, there is another Spring that ſends forth a Stink, *qualis eſt pulveris bombardæ extincti*: a Deſcription ſo agreeable alſo to our *Sulphur-well* at *Deddington*, that as I could not at firſt but wonder, that two ſuch *Waters* ſhould be found at Places ſo far aſunder, ſo ſtrangely alike; ſo it gave me a Hint, that theſe *Waters* in all probability might receive their Tinctures from the ſame *Minerals*, and that their difference might only lye in the Diſtances they have from the *Mineral* Bed, or more *Colanders* the one may paſs through than the other. *Agricola* obſerves, that the *Water* at *Steurewald* ſmelling like ours, much like *Rotten Eggs*, not only comes forth of a *Marble* Quarry, but that the Belchings of ſuch as drink it faſting, give alſo the Odour of brayed *Marble*. Whether ours have either ſuch a Paſſage or Effect, I muſt confeſs I cannot inform the Reader; my Purſe not affording me to try the one, nor my Stomach the other: However, I could wiſh it had not been ſtop'd up, as I hear it is ſince my being there, not only for the uſe it might have, but that Perſons better qualified than I, might have made the *Experiments*.

60. Of *Vitriolate* and *Ferrugineous Springs*, there are alſo plenty in this *County*, one at *Nether-Worton*, and another at *North-Weſton* *, within leſs than a Bolts-ſhot of each of their Churches; both of theſe, beſide their tinging with *Galls*, let fall a ſediment of a *ruſty* Colour; only with this Difference, that *Nether-Worton* Spring is much the quicker and clearer, though I doubt not the other might be very well amended, were but little Charge beſtowed on it.

[z] *Lib. De Natura eorum quæ effluunt ex terra.* * *I found another ſince, near* White's Oak *in the Pariſh of* North-Leigh.

61. At

61. At *Shipton* under *Which-wood* there is another of theſe, at an Inn there, whoſe Sign is the *Red-horſe*, but ſo weakly impregnated with the *Mineral*, that it ſcarce tinges ſenſibly with the Powder of *Galls*, yet lays down the *ruſty* Sediment in as great quantities as any of the reſt; and I have met with ſome at other places that have plentifully enough yielded *this*, which by no means could ever be brought to confeſs any thing of *Vitriol*, which has begotten a ſtrong Suſpicion in me, that this *ruſty Tincture* may probably be the *effluvium* of ſome other Body, different from, and not of the *Chalybeat* kind: for were it ſo, I cannot imagin but the *Salt* of *Mars* muſt needs be diſcovered. However, herein I will not be poſitive, but propound it only as the Subject of a ſeverer reſearch.

62. And of theſe I was told of a very odd one in the Pariſh of *Heddington*, near a place called the *Wyke* (I think) now ſtop'd up, that in the *Winter* time would ſtrike with *Galls*, but not in the *Summer*: whereof may be given this very eaſy reaſon; that during the time of *Winter*, the Pores of the Earth being ſtopt, and the *Mineral* thereby not permitted to exhale, the *Water* is then impregnated with it, and gives the *Tincture;* whereas in the *Summer* Seaſon it expires ſo much, that the depauperated *Water* can ſhew nothing of it. That *Waters* do thus alter according to the Seaſons of the Year, I found alſo to be manifeſt from the *Waters* of *Deddington*, which I found ſometimes lighter, and at other times heavier than common *Water*, and to give much different *ſediments* at divers Tryals with the ſame Materials. And this I thought convenient to note, not only to excite Men to more critical Obſervations, but that the curious *Explorator* may not be ſtartled, in caſe he find them at any time not exactly to anſwer.

63. In the *Park* at *Cornbury*, not far from the *Lodge*, in a Pit newly digged, there riſes a *Spring* alſo of a *Vitriol* kind, colouring the Mud and Earth under it very Black; into this Pit, it being deſigned for a *Conſervatory of Fiſh*, they put over Night ſome of ſeveral ſorts, but found them next Day in the Morning all Dead; which gave me good ground to ſuſpect (having juſt before met with a Relation of Dr. *Wittie*'s[a], *That Carps put into a Copper Brewing-veſſel to be preſerved but for one Night, were all found Dead in like manner in the Morning*) that here might be ſomething of that Nature too; and that the *Vitriol*, wherewith

[a] *Anſwer to* Hydrologia Chym. *p.* 25.

this

this *Water* is ſated, might rather be that of *Venus* than *Mars*: And in theſe Thoughts I was the more confirmed, when I quickly after was informed, of an odd kind of Steam that roſe hereabout of a ſuitable Effect: But of this no more, leaving its further Conſideration to the Right Honourable and Ingenious *Proprietor* of the Place, and my ſingular good Lord, *Henry* Earl of *Clarendon*, a moſt effectual Encourager of this Deſign.

64. To theſe I muſt add another ſort of *Waters*, which tho' in Taſte they reſemble *Milk*, muſt yet I believe be reduced to this Head, for I find, notwithſtanding their eminent Sweetneſs, they all refuſe to lather with *Soap*, and therefore conclude them to hold ſome *Acid*: Of theſe we have ſeveral within the City of *Oxford*, one at a Pump over-againſt the *Croſs-Inn*, another near the Mount in *New-College* Garden, and a third at the Pump at *Buckley-Hall*, formerly the Dwelling-houſe of one Mr. *Bowman* a Bookſeller, and ſeveral other places *: All which, notwithſtanding their *Lacteous* Taſte, I gueſs may be impregnated with ſomething of *Vitriol*, which though of it ſelf it be a ſmart *Acid*, yet its Edge being rebated with a well-concocted *Sulphur*, turns ſweet, and becomes of that more palatable Guſt. And herein perhaps I have not gueſs'd amiſs, ſince we are informed by as eminent, as 'tis a vulgar Experiment, That the Auſterity that *Vitriol* gives in the Mouth, is corrected by the Fumes of *Tobacco* taken quickly after it; *whoſe Sulphureous Particles*, ſays the Learned *Willis*[b], *mixing with the Saline Pontic ones of the* Vitriol, *create ſuch a pleaſant and melliſluous Taſte.*

65. There are alſo Two ſmall and very weak *Springs* of a *Lacteous* Colour, but no ſuch Taſte, in the way from *Southſtoke* leading to *Goreing*, by the River ſide; not many Years ſince of great repute in thoſe parts for *Medicinal* Uſe, but now quite deſerted; whether upon account of the ineffectual Uſe of them, or becauſe they are but temporary Springs, *ſub Judice lis eſt*: The People will tell you, they were very Soveraign, and never ceaſed Running till ſome Advantage was made of the *Water*, and that *Providence* till then with-held them not. This *Water* iſſues forth from a fat Whitiſh Earth, and has always a kind of unctuous Skin upon it, yet to the Taſte I thought it ſeemed dry and *ſiptical*, as

* *I heard of ſuch another ſomewhere near* Wardington. [b] *De Anima Brutorum, cap.* 12. *De Guſtatu.*

if

if it proceeded from a kind of *Lime-ſtone*, further within the Earth, and not to be ſeen.

66. But however the caſe may have it ſelf there, it is not ſo dubious, that at a Well in *Oddington*, there is a Water of the *Calcarious* kind, and proceeding ſure from ſome neighbouring *Lime-ſtone*, which beſide its dry and *reſtrictive* Taſte, more ſignally evidences it ſelf, in the *Providential* Cure of a local Diſeaſe amongſt Cattle, frequently catch'd by their graſing on *Otmoor*, and therefore by the Inhabitants thereabout commonly called by the Name of the *Moor-Evil*: The Diſeaſe is a kind of Flux of the Belly, and correſponds (in a Man) to what we call the *Dyſentery*, whereby the Cattle ſo ſpend themſelves, that in little time from well and good liking, they fall in a manner to Skin and Bone, and ſo dye away, unleſs prevented, which is certainly done by giving them dry Meat, and ſuffering them to drink of *this Water* only.

67. Beſide theſe we have many other *Waters*, not apparently (at leaſt to Senſe) of any *Mineral* Virtue, yet without doubt have their *Tincture* from ſome *ſubterraneous* Steam, of a much finer than ordinary, and therefore unknown *Texture*. Such are thoſe in many places accounted ſo ſoveraign for the *Eyes*, and Cure of inveterate *Ulcers*, after the ineffectual Tryals of the beſt *Chirurgions*: Theſe for the moſt part, and perhaps not undeſervedly, are commonly ſtiled *Holy-wells*, not only for the good they have formerly done, but that they ſeem to be the immediate Gift of *God*, and deſigned for the *poor*.

68. A very eminent one of theſe there is in the Pariſh of *Sandford*, not far from *Great-Tew*, which within the Memory of many thereabout, hath done great Cures upon putrid and fetid old Sores, a long time before given over for incurable. Theſe *Waters* have with them, according to the Obſervations of the ingenious Doctor *Beal* [c], a kind of active Friction, but intermingling with their Aſperities ſuch a pleaſant Titillation, as invites the Patient to rub on the terſive *Water*, and will all along recompence the Pain of ſearching the Wound, with ſuch ſpeedy and indulgent degrees of Sanation, as mitigates the Torment with variety of Pleaſures.

69. And thus (as I am informed by Perſons of unqueſtionable Fidelity, that have often uſed them for their *Eyes*, and in ſome other Caſes) do the *Waters* of St. *Croſſes* in

[c] *Philoſ. Tranſact. Numb.* 57.

the Suburbs of *Oxford*, whoſe Well as heretofore, and in ſome meaſure yet remains, ſo conſiderable for ſuch like Purpoſes, that the great Reſort of People give Occaſion of Change to the name of the Pariſh, which to this very Day we call now nothing but *Holy-Well*.

70. But of much greater Fame was the Well of St. *Edward*, without St. *Clements* in *Oxford*, now quite ſtopt up; but as 'tis remembred by ſome of the Ancienteſt in the Pariſh, was in the Field about a Furlong S. S. Weſt of the Church; this at leaſt was believed to be ſo effectual in curing divers Diſtempers, and thereupon held to be of ſo great *Sanctity*, that here they made *Vows*, and brought their *Alms* and *Offerings*; a Cuſtom, though common enough in thoſe Days, yet always forbidden by our *Anglican Councils* [d], under the name of Wilpeonþunga [*Wilweorthunga*] more rightly tranſlated *Well-worſhip* than *Will-worſhip*, as is plainly made appear by the *Reverend* and *Learned* Dr. *Hammond* [e], out of an old *Saxon Penitential*, and a *Saxon Homily of Biſhop Lupus*; where the Word þil is rather ſhewed to ſignify *fontem*, than *voluntatem*. Againſt theſe *Superſtitions* ſo ordinary in thoſe Days, there are ſeveral *Prohibitions* in the fore-cited *Penitential* and *Homily*. And of which kind are alſo divers *Injunctions* to be ſeen in the Office of *Lincoln*, of *Oliver Sutton*; and amongſt them, one particularly againſt the Worſhip of this *Well* of St. *Edward*, without St. *Clements* in *Oxford*, and St. *Laurence*'s *Well* at *Peterborough*, &c.

71. And ſo much for the *Waters*, with the *Minerals* they hold; However, ſince what has been ſaid, has not been *magiſterially* impoſed, but modeſtly only, and timorouſly conjectured; and ſince I have not invaded another Man's *Profeſſion*, by ſo much as naming the Diſeaſes they may probably cure, except where they have a known Reputation already, I hope I may evade the Imputations of Raſhneſs, or putting my Sickle into another Man's Harveſt.

ADDITIONS *to* CHAP. II.

§. 3. The great Age, *&c.*] None of theſe come near *Thomas Parr*, who lived to the Age of 151, Born at *Winnington* in *Shropſhire*, *Anno* 1483, the laſt of *Edward* IV. and living to 1634, the 9*th* of *Charles* the Firſt, 10 Kings

[d] *Canonibus ſub Edgaro, Can.* 60. [e] *Annotat. on Epiſt. Coloſſ. c.* 2. *v.* 23.

and

and Queens Reigns. *Vid. Nat. Hiſt. of* Staffordſhire, *C.* 8. *Par.* 102.

§. 4. A Council at *Oxford, An.* 1227.] *Concilium lugubre dictum, in quo cancellari & caſſari fecit Chartam Magnam,* Hen. 3. vid. Gloſſ. Spelm. p. 377.

§. 7. The great Council of *Kyrtlington, &c.*] Of this Council ſee more in the *Chron. Saxonicum,* Edit. *Oxon.* p. 123, 124. *& in Explicatione nominum locorum,* p. 33.

§. 10. *Black Aſſize, &c.*] Of this *Aſſize* ſee more in Mr. *Webſter's Hiſt. of Witchcraft. Vid. etiam* Rog. Bacon *de mirabili Poteſtate* Artis *&* Naturæ, *p.* 506, 507.

§. 11. And cut more Trenches for the Waters free Paſſage.] But when the River came to be made Navigable, they found an Inconvenience: the Channel of the main River by this means being made the ſhallower, as King *Alfred* could have told them that it would, who by this means made the River *Ley* in *Eſſex* ſo ſhallow, that it was uſeleſs to the Inhabitants for many Years, which they were forced after to remedy with Locks and Turnpikes, *vid.* Chron. Sax. *p.* 13. *in Lexico, in verb.* Appan.

§. 13. The *Thames-Water,* &c.] The Water at *New-London* in *New-England* is as good as that of *Thames. Phil. Tranſ. numb.* 127. *p.* 652.

§. 14. It gave ſo ample Teſtimony of its great Plenty, *&c.*] Generally the ſloweſt Rivers (*cæteris paribus*) are fulleſt of Fiſh, and this I take to be one reaſon why the *Thames* is more Piſculent than the *Severn. Britan. Bacon. pag.* 104.

§. 16. The River *Iſis* driven back, *&c.*] Of the River *Rhone* thus driven back. *vid. Phil. Tranſ. numb.* 86. *p.* 5046. ſo that we may ſay with *Pliny; Amnes retro fluere, & noſtra vidit ætas.* Nat. Hiſt. *Lib.* 2. *cap.* 103. *p.* 111.

§. 17. Concerning the Origin of Springs.] See a large Account of the Origin of Springs in the *Hiſt. of* Stafford-ſhire, *Chap.* 2.

CHAP. III.

Of the Earths.

OXFORD-SHIRE, ſays Mr. *Cambden* [f], *is a fertile Country and plentiful, the Plains garniſhed with Corn-fields and Meadows, and the Hills beſet with Woods; ſtored in every place, not only with Corn and Fruits, but alſo with all kind of Game for Hound and Hawk, and well water'd with Rivers plentiful of Fiſh.* Which general Deſcription of the *Soil*, though in the main it be true to this Day, yet if we come to a more particular and cloſe Conſideration of it, we ſhall find, that though *Oxford-ſhire* almoſt in every part, where the Induſtry of the Husband-man hath any thing ſhewed it ſelf, doth produce Corn of all ſorts plentifully enough; yet it has much more cauſe to *brag* of its *Meadows*, and Abundance of *Paſtures*, wherein (as in Rivers) few Countries may be compared, perhaps none preferr'd. And as to matter of *Fruits*, I think I may better aſſert of it what *Giraldus* does of *Ireland*, *Paſcuis tamen quam Frugibus, Gramine, quam Grano, fœcundior Comitatus*, than groundleſly to commend it overmuch.

2. The Hills, 'tis true, before the late *unhappy Wars*, were well enough (as he ſays) beſet with *Woods*, where now 'tis ſo ſcarce, that 'tis a common thing to ſell it by weight, and not only at *Oxford*, but at many other places in the Northern parts of the *Shire*; where if brought to *Market*, it is ordinarily ſold for about *One Shilling the Hundred*, but if remote from a great Town, it may be had for *Seven-Pence*: And thus it is every where but in the *Chiltern Country*, which remains to this Day a *Woody* Tract, and is (as I have very good ground to think) ſome of the *Weſtern* part of the great *Foreſt* Andpeðerpalð, or Andpeðerlege, reaching, ſays *Leland* [g], from beſide *Portus Limenus* in *Kent*, a 120 Miles *Weſtward*, which falls out to be about this place: To which had *Cæſar* ever arrived, he had never ſure left us ſuch an account, as we find in his *Commentaries* concerning our *Woods*: *Materia*, ſays he, *cujuſque generis, ut in* Gallia, *præter Abietem & Fagum* [h], i. e. *that there was*

[f] Britan. *in* Oxford-ſhire. [g] Lelandi *Comment. in Cyg. Cant. in verbo Limenus.* [h] *De Bello Gallico, lib. 5.*

here

here all manner of Wood, as in France, *except the* Fir *and* Beech: of the laſt whereof there is ſuch plenty in the *Chiltern*, that they have now there-about ſcarce any thing elſe; but it lies ſo far from *Oxford*, and ſo near the River ſide, which eaſily conveys it to *London* Market, that 'tis ſcarce beneficial to the reſt of the *Country*.

3. As to the qualifications of the *Soil* in reſpect of *Corn*, I find them in goodneſs to differ much, not only according to their ſeveral Compoſitions (being in ſome places *Black*, or *Reddiſh Earth*: in others a *Clay* or *Chalky* ground, ſome mixt of *Earth* and *Sand*, *Clay* and *Sand*, *Gravel* and *Clay*, *&c.*) but chiefly according to the depth of the *Mould* or uppermoſt *coat* of the Earth, and the Nature of the ground next immediately under it: for let the uppermoſt *Mould* be never ſo rich, if it have not ſome depth, or ſuch a ground juſt underneath it, as will permit *all ſuperfluous Moiſture to deſcend, and admit alſo the hot and comfortable Steams to aſcend*, it will not be ſo *fertile* as a much leaner *Soil* that enjoys theſe Conditions.

4. Thus I have often-times ſeen in this *County*, in all Appearance a very good *Soil*, and ſuch indeed as would otherwiſe have been really ſo, leſs *fertile*, becauſe of its Shallowneſs, and a cold *ſtiff Clay*, or cloſe *Free-ſtone* next underneath it, than a much poorer Land of ſome conſiderable Depth, and lying over a *Sand* or *Gravel*, through which all *ſuperfluous Moiſture* might deſcend, and not ſtand, as upon *Clay* or *Stone*, to chill the Roots and make the Corn languiſh.

5. Where by the way let it be noted, that I ſaid a *cold ſtiff Clay* or *cloſe Free-ſtone*; for if there be under a ſhallow *Mould*, a *Clay* that's mixed (as 'tis common in the Blue ones of this *County*) either with *Pyrites Aureus*, or *Braſs Lumps*; or the Stones be of the warm *calcarious* kind, it may nevertheleſs be *fruitful* in *Corn*, becauſe theſe, I ſuppoſe, do *warm* the Grounds, and give ſo much Strength, that they largely recompence what was wanting in Depth.

6. More poſſibly might have been added to this general Account of *Earths*, and not a little Inſtructive to the *Farmers* of the *Country*, but I found moſt of them Froward, and to ſlight my *Queries*; let them therefore thank themſelves if I am not ſo obliging: Beſide, it ſeems a Buſineſs a little beſide my *Deſign*, therefore in Haſte I proceed to a more particular Conſideration of *Earths* (as before of *Waters*) holding ſome *Spirit*, *Bitumen*, or *concrete Juice*, and as they are uſeful in *Trades*, or are otherwiſe Neceſſary, Convenient, or Ornamental.

7. But

7. But herein I ſhall not ſhew my ſelf either ſo Angry or Ignorant, or ſo much either diſreſpect my Subject, or the Civilities of the *Gentry* for the ſake of the *Clowns*, as not in the next place to treat of ſuch *Earths* whoſe moſt eminent Uſes relate to *Husbandry*, ſince they alſo hold ſome *concrete Juices* (whereby they become Improvements of ſuch poor barren Lands) and are therefore very ſuitable to my preſent Purpoſe.

8. The beſt of theſe we call commonly *Marls*, whereof, though 'twas believed there were none in *Oxford-ſhire*, yet I met with no leſs than three ſeveral Sorts, and in Quantities ſufficient enough for Uſe. The *Britiſh Marls* were very famous of Old, whereof *Pliny* [i] numbers ſeveral Sorts; and of principal Note were the *Leucargillæ*, whereby, he ſays, *Britain* was greatly enrich'd: And of this kind, *that* I gueſs may be one, lately diſcovered by the much *Honoured*, and my truly Noble Friend, *Thomas Stonor* Eſq; of *Watlington-Park*, of which he already has had good Experience: of Colour it is *Whitiſh*, a little inclining to *Yellow*, not very Fat, and of ſo eaſie Diſſolution, that it may be laid on the Ground at any time of the Year, and may be as good, I ſuppoſe, for *Paſture* as *Arable*: this he found at a place near *Blund*'s-*Court*, but I think within the Pariſh of *Shiplake*, where upon another account ſinking a deep Pit, amongſt other Matters he met with this *Marl*.

9. Since that, there has lately been another diſcovered by that Eminent *Virtuoſo* Sir *Thomas Pennyſton*, in his own Grounds in the Pariſh of *Cornwell*, about a quarter of a Mile *North-Weſt* of his Houſe, of a Blue Colour, and ſo abſterſive, that it would readily enough take Spots out of Cloaths, and gave its *Owner* ſome ground to hope, that poſſibly it might be fit for the *Fuller*'s Uſe; but he quickly, upon Trial, diſcovered an incurable Fault that the Men of that Trade will never pardon: However, I take it to be ſo rich a *Marl*, that it may amply recompence the Induſtry of its *Maſter*, if laid on its neighbouring barren Hills; which I *adviſe* may be done about the beginning of Winter, that the Froſts and Rain may the better ſeparate its parts, and fit it to incorporate with that hungry Soil.

10. Which Condition I ſuppoſe may not at all be required in the Manure of a light and hollow ſort of *Marl*,

[i] *Plin. Nat. Hiſt. lib.* 17. *cap.* 6, 7.

found

found by the Worſhipful and Induſtrious Improver *George Pudſey* Eſq; of *Elsfield:* for in Water it diſſolves almoſt as ſoon as *Fuller's-Earth*, and is naturally of it ſelf ſo hollow and ſpungy, that one would think it were always in the very Ferment, and may therefore be uſed at any fit time of the Year: of Colour when dry, it is of a whitiſh Grey, intermixed with Sand, and very friable, and may in all probability be the very ſame with the *Marga candida arenoſa friabilis* of *Hildeſheim*, mentioned by *Kentmannus* [k], and out of him by *Lachmund.* Of juſt ſuch another *Marl* as this, brittle and duſty when dry, but fat when wet, we are inform'd there is at *Wexford* in the Kingdom of *Ireland*, by Dr. *Gerrard Boate* [l] ſometime Phyſician there; only that *that* is Blue, and *this* a Whitiſh Grey, and may therefore be fitter for Paſture than Arable. It being obſerved in the Counties of *Suſſex* and *Kent*, where *Marls* are moſt plenty of any places of *England*, that the *Grey* ſuit with Paſtures, and the *Blue* (ſuch perhaps as Sir *Thomas Pennyſton*'s) with Arable beſt.

11. It may therefore be expedient, that theſe new-found *Marls* be thus agreeably tryed, and though they anſwer not Expectation the Firſt Year, as ſome ſay they will not [m], let not their *Owners* be thus diſcouraged, but ſtill continue to make frequent tryals, of divers Proportions of Earth, at all Seaſons of the Year, with all kinds of Grain, upon all ſorts of Soil, 'till they find out the moſt ſuitable and neceſſary Circumſtances, ſo ſhall they in time attain to a Knowledge beyond the Expectation, and perchance Imitation of their Neighbours. But I forbear to inſtruct ſuch *Ingenious Perſons*, as the *Owners* of the above-named Marl-pits are: the *Orator* being accounted little leſs than a Fool, that went about in his Speech to teach *Hannibal* to Fight.

12. But beſide theſe, we have another ſort of Earth, of a fat cloſe Texture, and Greeniſh Colour, ſo well impregnated with ſome kind of *Salt*, that put in the Fire, it preſently *decrepitates* with no leſs Noiſe than *Salt* it ſelf; and in *Water*, after quick and ſubtile Solution, leaves behind it a kind of brackiſh Taſte, which I thought might proceed from a ſort of *Vitriol*, and perhaps true enough, tho' the Water would not tinge with Powder of Galls: it takes

[k] *Kentman. nomenclat. rer. foſ. cap.* 3. *de Margis.* [l] Boat's *Nat. Hiſt. of* Ireland, *c.* 12.
[m] *Plin. Nat. Hiſt. lib.* 17. *cap.* 8.

Greaſe

Greaſe out of Cloaths extreamly well, and would it but Whiten, as *Fuller's-Earth* doth, I ſhould not doubt to pronounce it the ſame with the *Viridis Saponaria*, found near *Beichling* in *Thuringia*, and mentioned by *Kentmannus* in his Collection of *Foſſils* [n]. This we have in great Plenty in *Shotover-Foreſt*, where 'tis always met with before they come to the *Ochre*, from which it is ſeparated but by a thin *Iron Cruſt*, and may peradventure be as ſtrict a Concomitant of *Yellow-Ochre*, as *Chryſocolla* (another Green Earth) is ſaid to be of *Gold*. At preſent 'tis accounted of ſmall or no Value, but in Recompence of the ſignal Favours of its preſent *Proprietor*, the Worſhipful *James Tyrril* Eſq; I am ready to diſcover a Uſe it may have, that may poſſibly equal that of his *Ochre*. Which brings me next to treat of ſuch *Earths* as are found in *Oxford-ſhire*, and are uſeful in Trades.

13. And amongſt theſe the *Ochre* of *Shotover*, no doubt, may challenge a principal place, it being accounted the beſt in its kind in the World, of a Yellow Colour and very Weighty, much uſed by *Painters* ſimply of it ſelf, and as often mix'd with the reſt of their *Colours*. This by *Pliny* [o], and the *Latines*, was anciently called *Sill*, which we have now changed for the modern Word *Ochra*, taken up, as ſome think, from the Colour of the *Earth*, and the Greek Word Ὠχρὸς, *Pallidus;* or as others, and they perhaps more rightly, from the *Ochra* that runs through *Brunſwick*, whoſe Banks do yield great quantities of it [p]; and from whence in all likelihood we received the Name, upon the Arrival of the *Angles* and *Saxons* in *Britain*.

14. They dig it now at *Shotover* on the *Eaſt* ſide of the *Hill*, on the Right-hand of the way leading from *Oxford* to *Whately*, though queſtionleſs it may be had in many other parts of it; The *Vein* dips from the *Eaſt* to *Weſt*, and lies from ſeven to thirty Feet in depth, and between two and ſeven Inches thick; enwrapped it is within ten folds of *Earth*, all which muſt be paſt through before they come at it; for the *Earth* is here, as at moſt other places, I think I may ſay of a *bulbous* Nature, ſeveral folds of divers Colours and Conſiſtencies, ſtill including one another, not unlike the ſeveral Coats of a *Tulip* Root, or *Onyon*.

The 1. *Next the Turf, is a Reddiſh Earth.*

2. *A Pale Blue Clay.*

[n] *Cap.* 1. *De Terris.* [o] Plin. *Nat. Hiſt. lib.* 33. *cap.* 12. [p] *Encelius de re Metal. lib.* 2. *cap.* 20.

3. *A Yellow Sand.*
4. *A White Clay.*
5. *An Iron Stone.*
6. *A White, and ſometimes a Reddiſh Maum.*
7. *A Green, Fat, Oily kind of Clay.*
8. *A thin Iron-coloured Rubble.*
9. *A Green Clay again.*
10. *Another Iron Rubble, almoſt like Smith's Cinders.*

And then the *Yellow-Ochre*, which is of two *ſorts*.

1. The *Stone-Ochre*, which we may alſo call native, becauſe ready for uſe as ſoon as 'tis dug: and
2. *Clay-Ochre*, which, becauſe of the natural Inequality in its Goodneſs, they waſh and ſteep two or three Days in Water, and then beat it with Clubs on a Plank into thin *broad Cakes*, of an equal Mixture both of good and bad: then they cut it into Squares like Tiles, and put it on Hurdles laid on Treſtles to dry, which when throughly done 'tis fit for the *Merchant*.

15. Where perhaps by the way it may be worthy our notice, how different either the *Ochres*, or *Opinions* of Men concerning them, are now, from what they formerly were: for whereas *Dioſcorides* (as quoted by *Wormius*[r]) commends to our choice the lighteſt *Earthy Ochre*, highly before the other of *Stone*: We on the contrary, and not without reaſon, prefer the *Stone-Ochre* as far before the *Clay*.

16. I was told of a *Yellow-Ochre* ſomewhere between *Ducklington* and *Witney*, that ſerves them thereabout for inferiour uſes; and met with it beſide at ſome other places, but none ſo good as this at *Shotover*; that at *Garſington* being full of Blue Streaks, and a ſmall parcel (that was ſhewn me) taken up about *Pyrton* intermixed a little too much with Red, as if it were now in the Tranſmutation (ſo much ſpoke of by *Naturaliſts* *) by the *Earth* and *Sun*'s Heat; firſt into *Rubrick*, or *Ruddle*, and thence at laſt into *Pnigitis*, or elſe *Black Chalk*.

17. Now that *Nature* indeed proceeds in this *method*, I am almoſt perſwaded by what I have found in *Shotover-hill*, and elſewhere near it: for within two Beds next under the *Ochre* (nothing but a white Sand interceding) there lies another of a much *Redder Hue*, which firſt receiving the Steams

[r] Ol. Wormii *Muſæum. cap.* 4. * Encel. *de re Metal. cap.* 20.

of the *Earth*, is now in the way of becomming a *Ruddle*, and in proceſs of time when it grows *aduſt*, may at laſt make a change into a *Black Chalk*; which I ſhould not ſo eaſily have been induced to believe, but that at *Whately* Town's-end, near the Foot of the Hill, where lately ſome Attempts were made for *Coal*, they met with a Vein of ſuch kind of *Chalk*, which perhaps long before might have been nothing but *Ruddle*, and as long before that, a *Yellow-Ochre*. But whether Nature proceed thus or no; or ſuppoſe theſe are not (as ſome have thought) the ſeveral Gradations of the ſame Individual, yet however, I ſhall not be guilty of miſ-placing, ſince all Three belong to the *Painter*'s Trade.

18. To which may be added a ſort of *Cæruleum*, which in *Engliſh* we may render *native Blue*, becauſe naturally produced by the Steam of ſome *Mineral*, latent under the afore-mentioned *Marl* at *Blund*'s-*Court*, amongſt which it is found in very good plenty; but yet ſo thinly coating the little Cavities of the *Earth*, and ſome other Bodies (of which hereafter) to which it ſticks, that no quantities can be gotten for the *Painter*'s uſe, for whom it would otherwiſe be very fit, as upon Tryal has been found by the Worthy Mr. *Stonor*. *Kentmannus*[f] indeed tells us of a cinereous ſort of *Earth* ſomewhere near *Padua*, that affords ſuch a *Blue*; but I gueſs that ours cannot be (nor perhaps is that) the immediate Production of the ambient *Earth*, but rather of ſome *Mineral* or *Metal* below it; of which more at large in a fitter place.

19. Hither alſo may be referr'd a gritty ſort of *Umbers*, found in all parts of the *County* where there are Quarries of Stone: a courſer kind of them I met with near *Witney*, and a ſomewhat finer at *Bladen* Quarry; theſe ſometimes are found in the Seams of the *Rocks*, and ſometimes again in the Body of the *Stone*; and notwithſtanding their gritty *Texture*, yet prove uſeful enough to *Dreſſers* of Leather. But yet a much finer than either of the former, has been lately taken up at *Waterperry*, in the Ground, and near the Houſe of the Right Worſhipful Sir *Thomas Curſon*, of ſo rich and beautiful a Colour, that perhaps it might better have been placed among the *Ochres*, but that mix'd with Oyl, it turned darker than that they call *Engliſh*, and much more ſo than the *Spruce-Ochre* of *Shotover-Foreſt*.

20. Beſide theſe, we have another *fine Earth*, of a White Colour, porous and friable, inſipid and without Scent, diſſo-

[f] Kentman *de Terris, cap.* 1.

luble

luble in Water; and tinging it of a Milky Colour, and ſometimes raiſing a kind of Ebullition in it; found frequently in the Liſſoms or Seams of the Rocks, or ſticking to the hollow Roofs of them: in ſhort, ſo altogether agreeable to what *Conradus Geſner* [f] (and out of him *Boetius de Boot*, *Calceolarius*, *Aldrovandus*, and *Olaus Wormius*) calls *Lac Lunæ*, that I could not but think it the very ſame. And to put all out of doubt, I tried the Experiment of *Daniel Major* (who wrote no leſs than a whole Treatiſe concerning it) and found, according to him, that with *Lacca*, though I could get none good, it gave the Skin ſo florid a Whiteneſs, that I dare pronounce it a good *Coſmetick*, and upon that very ſcore have given it place here.

21. I obſerved it firſt near the *Worceſter-Road*, about Mid-way between *Holton* and *James Tyrril*'s Eſq; where the Stones taken up, for I know not what Uſe, as alſo at ſome places in *Whately* Field, were all in a manner covered with it. And I met with it again near *Haſeley*, in the Fields between that and *Little-Milton*, and quickly after at *Long-Hanborough*, upon Stones provided for Walling there: I enquired of the Quarry-men what it might be, whether they had made any Uſe, or Obſervations of it, but all I could get would amount to no more, but that it was a ſign of a very good *Lime-ſtone*.

22. Which alſo it ſeems is its *Character* amongſt our Neighbours in *Ireland*, where (we are [t] told) the beſt *Lime-ſtone* is of a Grey Colour, and if broken, has a White Duſt that flies away from it. But if we may believe *Olaus Wormius*, 'tis a ſign alſo of ſomething much better than that, who apprehends it to be nothing leſs than a certain effect of *Metallick Vapors*: *Oritur* (ſays he, ſpeaking of *Lac Lunæ*) *a Vaporibus Metallicis, qui indies ſubtiles vehunt exhalationes, quæ ubi per ſaxa in cavitates exſudaverint, humido evocato, quod ſiccum eſt remanet & in medullam hanc raram, teneram, & friabilem concreſcit.* [u] To which *Daniel Major* not only agrees, but more particularly adds, that the matter of this Earth proceeds from the *Metallick Vapors* of *Silver Ore*, by ſome fermentation raiſed and ſublimed, and then condenſed on the ſides of the Rocks.

23. Of which, ſays *Geſner* [w], there are two ſorts; the one *groſs* and *gritty*, becauſe immature and crude; the

[f] *De figuris Lapid. c.* 6. [t] Boat's *Nat. Hiſt. of* Irel. *c.* 20. *ſect.* 4. [u] *Ol. Wormii Muſæum, c.* 4. [w] *De figuris Lapidum, cap.* 2.

other more perfectly concocted, *whiter*, *lighter*, and *ſofter*: And of both theſe we alſo find here, but whether indicative of *Silver Ore*, as in the mentioned places by *Johan. Daniel Major* [x], is the great Queſtion. In anſwer whereunto I cannot but add, that though I ſhould be very unwilling, that any *Owner*, *Farmer*, or *Others*, ſhould hazard their Fortune upon my weak Judgment, without the Advice of ancient and experienced *Bermen*; yet that at *Shotover*, beſide *Lac Lunæ*, there are other Symbols of *Silver Ore*.

24. Whereof, if any heed may be given to *Pliny*, the *Ochre* before-mentioned may be accounted one: *In Argenti & Auri Metallis naſcuntur etiam optima Pigmenta Sil & Cæruleum*; where by *Sil* he means ſuch Yellow *Ochre*, than which, there is no place we know of in the World that has greater Plenty, or of equal Worth. To which we may add a ſort of *Iron-ſtone*, which is not *Iron-ore*, found peradventure in as great Quantities here, as it is upon the Hills near *Schemnitz* in *Hungary*, the greateſt *Mine-town* in that *Kingdom*: where it ſeems it is not only a ſign of the *Ore*, but is alſo of great uſe in melting of it; whereof ſays Dr. *Brown*, in his Journey thither, that of a Liver-colour is counted beſt [y]. Now that we have ſuch an *Ore*, though I dare not promiſe, yet provided we had in the greateſt Plenty, that of a Liver-colour'd *Iron-ſtone* (I dare ſay it) would not fail us.

25. But if *Lac Lunæ* alone may be a ſufficient *Index*, and if we are not miſtaken in the thing it ſelf, (as I verily think we cannot be) none of the places already mention'd can ſhew it in Quantity and Goodneſs too, equal to a Quarry in the Pariſh of *Cornwell*, *South-Weſt* and by *Weſt* about an Hundred Yards from the Right Worſhipful Sir *Thomas Pennyſton*'s Houſe; where it is found ſo well concocted, and of ſo great Purity, that the driven Snow never appear'd Whiter; and yet in ſo great a Quantity too, that I cannot gueſs the *Mineral*, or whatſoever other *Metal* it be, that gives ſo great a Steam as this, can lie very deep, or be very poor: Yet I ſhall not preſume to adviſe its *Owner*, the eminent *Virtuoſo* Sir *Thomas Pennyſton*, any further to dig in Queſt of it, than according as he ſhall want Stone upon other Occaſions, to ſink his Pit, for the future, *Perpendicular* to the *Horizon*, whereas now he takes it as it riſes *in Plano*: So that in time, when he is gotten through the

[x] *De Lacte Lunæ diſſertatio Medica. An.* 1667. [y] Account of his Travels *pag.* 92.

Rock,

Rock, a more certain Judgment ſhall be paſt on what lies under, with little Charge or Damage to *him*: Where if in time he find a Treaſure, I am ſure the *Diſcoverer* will not want his Reward, from ſo Ingenious, and every way Accompliſh'd a *Perſon*, at leaſt in ſuch Proportion as has always been allowed by the *Societies* of the *Mines Royal*, and *Mineral Battery-works*.

26. Beſide the notice it gives of *Mines*, and uſe it has in covering the Blemiſhes of the *Face*, like the Earth *Quei* of *China*, mentioned by *Kircher* [z]; its *medicinal* Uſes are very great. For by *Georgius Agricola*, and *Ferrante Imperato*; the former whereof calls it *Stenomarga* [a], and the latter *Agaricus Mineralis* [b]: it is thought to have the Virtues of the *Samian* Earth, and to be very beneficial in ſtopping of Blood, and Women's Diſeaſes. *Boetius* [c] holds it to be a good *Narcotick*, and that it ſafely may be given to procure Sleep. And *Geſner* [d] affirms it to be commonly ſold by the *Apothecaries* of *Lucern*, and uſed by *Chirurgions* to dry Gleeting Sores; and that given to Nurſes, it increaſes their Milk, and quickly makes their Breaſts apparently ſwell. And upon this account it ſerves me as a ſeaſonable Tranſition to paſs next to the Earths of *Medicinal* uſe.

27. Of which the moſt likely I have met with yet, is dug amongſt the Clay they uſe for Bricks, in the Pariſh of *Nettlebed*, not far from the Wind-mill, of as Red a Colour as *Bolus Armenus*, but not like that diſcolouring the Hands; ſtrongly *adhering*, if put to the Tongue, but whether *provocative* of Sweat or no, I have not hitherto been able to perſwade a Tryal. However, let it prove never ſo good, I'le not promiſe the *Owner* any great Profit, becauſe of the Humor we have of deſpiſing our own, and only admiring and eſteeming thoſe things, that are far fetched and dearly bought.

28. But quite of another mind was that famous Phyſician, Mr. *Henry Sayer* of *Magdalene College Oxon*, who commonly made uſe of cinereous Earth, ſomewhat tending to Yellow, and finely *chamletted*, that he found at the Quarries, in the *gullies* of the Rocks in the Pariſh of *Heddington*: with which, as I was informed by Mr. *Croſs*, once his *Apothecary*, he did as frequently, and as well procure Sweats, as with any of the foreign *Earths* whatever.

[z] *China illuſtrata.* [a] *De Natur. Foſſil.* [b] *Dell' Hiſt. Natural. lib. 5. cap. 4.* [c] *De Lapid. & Gemmis. cap. 229.* [d] *De Figuris Lapidum, cap. 2.*

29. To

29. To theſe may be added a Whitiſh fat *Earth*, formerly of ſome uſe in *external Applications*, which they fetch'd, whilſt the *Waters* continued in requeſt, from the Orifice of the afore-mentioned *Spring* at *Goreing*, and fancied it at leaſt, to be a very good Remedy for the *Ach* of Corns, and ſome other ſuch *Maladies*: but as ſoon as the *Waters* began to fail, the *Earth* too (though ſtill there remain enough) began to decline in its Reputation, and is now of very little (if of any) Eſteem.

30. There is another White *Earth* of ſome uſe in this Country, which ſome will have alſo, as well as *Lac Lunæ*, to deſerve the Name of a *Mineral Agaric*: it grows for the moſt part within round hollow Flints, to be had almoſt every where in the *Chiltern* Country, and good to ſtop Fluxes, boiled in Milk; and I was told by an eminent Phyſician, has been uſed in Conſumptions with good Succeſs. The Stone in which it grows they call here a *Chalk-Egg*, and is the ſame with the *Geodes* of the ancient *Naturaliſts*, of which, becauſe further in the *Chapter of Stones*, I forbear to add more concerning it here.

31. Hither alſo muſt be referred, not only the *Earths* that are found to be ſoveraign for Man's Preſervation, but according to the *Logical* Rule of *contraries*, ſuch as often have been his Deſtruction too: Whereof there are ſome in the Pariſh of *North-Leigh*, that ſend forth ſuch ſudden and deadly Steams, that they kill before the *Patient* gan give the leaſt notice, of which they have had two very deplorable Examples.

32. The firſt whereof happened in *Auguſt*, about the Year 1655, when two Men of the place, imployed to dig a Well, firſt ſickned, and wiſely withdrew from the Work: whereupon it was undertaken by two others of *Woodſtock*, Men of greater Reſolution and leſs Wiſdom: who before they could do any thing conſiderably in it, ſunk down and irrecoverably Died in the Well: which quickly being perceived by a Woman above, a *Miller* hard by was called to their Aſſiſtance, who as unhappily as willingly deſcending to them, alſo ſuddenly fell down upon them, and died: To whom, after ſome Deliberation taken, *another* ventures down with a Rope about his Middle, but he fell from the Ladder in juſt the ſame manner, and though preſently drawn up by the People above, yet was ſcarcely recover'd in an Hour or more.

33. And now again but lately, on the 20th of *Auguſt* 1674. upon a Bucket's falling caſually into a Well, on the *South* ſide of the *Town*, about a Furlong from the former, a Woman calls her Neighbour, a luſty ſtrong Man, to go down by a Ladder to fetch up her Bucket, who altogether unmindful of the former Accident, ſoon granted (as it proved) her unhappy Requeſt; for by that time he came half way down, he fell Dead from the Ladder into the Water: the Woman amazed, calls another of her Neighbours, a luſty young Man of about eight and twenty, who haſtily deſcending to give his Aſſiſtance, much about the ſame place alſo fell from the Ladder, and Died, without giving the leaſt Sign of his Change, ſo ſuddenly mortal are the Damps of the *Earth*.

34. Dr. *Boat*[e], in his *Natural Hiſtory* of *Ireland*, gives account of an accident that happen'd at *Dublin*, in a Well there ſo very like ours, that they ſcarcely differ in any Circumſtance. And we have a Relation in our *Philoſophical Tranſactions*[f], of ſuch kind of Damps that happen'd in Coal-mines belonging to the Lord *Sinclair* in *Scotland*. Now though we muſt not conclude from hence, that here muſt therefore needs be *Coal;* yet, conjoyned with others I know hereabout, I take it not to be ſo unlikely a *ſign*, but that of all others I know of in the *County*, I gueſs this may be the moſt probable place.

35. For though I think thoſe poyſonous and killing Steams may indeed more immediately have their riſe from a *Pyrites*, or *Copperas-Stone*, found here in great Plenty where-ever they dig; a piece whereof brought me by a Friend thence, upon Taſte, proved a *Vitriol* ſo ſtrong and virulent, that preſently from my Mouth it ſo affected my Stomach, that I confeſs for a while I was fearful of Danger: yet, it being the common Conſent of *Naturaliſts*, that ſuch *Pyrites* are nothing but the *Efflorescence* of *Minerals*, latent underneath them in the Bowels of the Earth, my Conjecture thereby is not made the leſs valid.

36. With the *Pyrites cinereus*, or *Copperas-Stone*, not unlikely there may alſo be ſome Mixture of *Arſenic*, which advances its Malignity to that deadly Strength, that no Man may approach under Pain of Death: But that for the future, the inſenſible Invaſions of this ſecret Enemy may for ever be avoided, let all *Work-men*, and ſuch as upon any account whatever have Occaſion to dig, or go down in theſe Wells, firſt throw down into them a Peck of good

[e] *Cap.* 18. *Sect.* 4. [f] *Phil. Tranſ. numb.* 3.

Lime

Lime, which ſlaking in the Water, and fuming out at the Top, will ſo effectually diſpel all ſuch poyſonous Vapors, that they may ſafely go down, and ſtay ſometime unhurt.

37. From theſe miſchievous ones of *Vitriol* and *Arſenic*, I proceed to ſome other more innocent *Salts*, before promiſed more fully to be handled here, with which ſome *Earths* being peculiarly qualified, are accordingly diſpoſed to *Petrify* Bodies. How all *Petrifications* are performed by *Salts*, and *Petrifications per minima*, by their ſubtileſt Steams, I ſuppoſe has already ſufficiently been ſhewn, as alſo how *Waters* moſt probably effect them: It remains only therefore now to be proved, that *Earths* as well as *Waters*, do afford ſuch Steams as permeate alſo the moſt ſolid *Texture*.

38. To which purpoſe I met with a curious Inſtance in the Fields between *Clifton* and *Nuneham-Courtney*, of a Stone that repreſents a ſound piece of Aſh, cut both parallel and tranſverſly to the Pores, and retaining the Grain and Colour ſo well and lively, that no Body at Sight believes it to be other than a firm and ſolid piece of Wood: and yet this was taken out of Grounds thereabout, as far from Water as one need to wiſh. In ſhort, the Verſion ſeems ſo very perfect, its Subject appearing to have been very ſound and free from Rottenneſs, that either we muſt own ſuch *Petrifications* as this, to be truly ſuch, and *totum per totum*, or elſe allow that Stones may grow in Grain and Colour exactly like Wood.

39. But that the latter of theſe may not ſo far take place (though the Poſſibility of the thing muſt not be denied) as to exclude a Poſſibility of its being ſometimes otherwiſe; I take leave to inſtance in another *Petrification* made alſo by an *Earth*, and not by *Water*, that ſeems to carry a Neceſſity with it, of its Subjects once being ſolid *Wood*: for beſide, that it ſhews the cloſe Grain of *Oak*, and therefore by *Naturaliſts* called *Dryites*: it was taken up in great quantities too, and out of ſome of the pieces, (whereof I have one) it may be plainly ſeen where *Twigs* have come forth, the Knots ſtill remaining where they were cut off; ſo that unleſs we fly to the *Sports* of *Nature*, and allow *her* to imitate almoſt all things in Stone, we cannot well avoid a Conſent, that this was ſometime really *Wood*. It was caſually dug up in the Pariſh of *Wendlebury*, in a gravelly Ground not far from the Church, and is, I believe,

the

the ſame Earth mentioned ſo good for this purpoſe in our *Philoſophical Tranſactions* [g].

40. Thus having conſidered the principal *Earths* uſed in *Husbandry*, *Painting*, *Medicine*, *&c.* I proceed in the next place to treat of ſome others, leſs in value, and put to inferior uſes: Amongſt which we may reckon the very uppermoſt Turf; which beſide for *Bowling-greens*, and *Graſs-walks* in Gardens, is not unfrequently uſed by *Thatchers*, and laid on *Mud-walls*, and the *tops* of Houſes, in the place and manner of thoſe we call *Ridge-tiles*; not that it is ſo good as *Thatching* (though ſome ſay it better reſiſts the Winds) but becauſe in ſome places Wood is ſo ſcarce, that they cannot get *Spraies* to faſten on *Thatch*; or elſe the People ſo poor that they care not to buy them.

41. Alſo at ſome other places, for want of *Wood*, they make uſe of another ſort of *Turf* for Fewel, not the upper *Green-ſword*, but an inferior ſtringy *Bituminous Earth*, cut out like *Bricks*, for the moſt part from mooriſh boggy Grounds; in ſome Countries called *Peat-pits*, in others *Moſſes*. The beſt of this Turf that I have ſeen in *Oxford-ſhire*, I met with at Mr. *Warcup*'s in the Pariſh of *North-Moor*, but dug, as I was informed, in *Stanton-Harcourt*, about a Mile diſtance S. Weſt from the Church: it lies but one ſpit's depth within the ground, and is ſuppoſed to be at leaſt four Foot thick: They cut it in *March*, and lay the pieces called *Peats* to dry on the Graſs, ſometimes turning them; which when reaſonably well done, they then pile up like *Wheelwright's Felleys*, leaving every where empty ſpaces between, that the Air and Wind paſſing through them, they at length may become dry enough for the Fire. They think that the *ſtringy Roots*, that together with the *Bitumen*, make up the *Peats*, do never flouriſh above the Surface: if ſo, I am ſomething confirmed in an Opinion, that there are many *ſubterraneous Plants* not noted, of which I intend a diligent Enquiry [h]. After the *Peats* are taken out, they fill up the ground again with the graſſy *Earth* that was firſt cut up. And at *Cowley*, where they alſo dig them, they uſually leave the Depth of one *Spade-graft* at the bottom, as a Foundation whereon they may grow again, which in the ſpace of twenty or thirty Years, 'tis obſerv'd they will do in the *North* of *England* *.

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[g] *Numb.* 6. [h] *Vid.* Nich. Stenonis *Prodrom.* * *They dig pretty good Peats alſo near the* Wyke *at* Heddington; *and in a boggy Ground Eaſt-ward of* Elsfield *Church.*

42. The Scarcity alſo of Fireing has induced ſome People to burn a ſort of *black Subſtance*, of a Grain ſomewhat like rotten Wood half burnt, but participating alſo of a *Mineral* Nature, and therefore by Authors called *Metallophytum*, or *Lignum foſſile* [i]: put into *Water*, it will not ſwim; and into *Fire*, it conſumes but ſlowly, and ſends forth very unpleaſant Fumes: it is found in a Quarry called *Langford-pits*, in the Pariſh of *Kidlington*, not far from *Thrup*, about eighteen Foot deep under the Rock, where there lies a Bed about four Inches thick. But at *Ducklington* I met with a much finer Kind, and richer in *Bitumen*; for though on the Out-ſide it looks like Wood, yet broken, it ſhews a ſmooth and ſhining *Superficies*, not unlike to *Stone-pitch*, and put in the *Fire*, has not near ſo ill a Smell. This was dug, and kindly beſtowed upon me by the Worſhipful *William Bayly* Eſq; who told me beſide of an *Aluminous Earth*, that he ſomewhere alſo found in his Ground. As for the Subſtance, *Lignum foſſile* it is thought to be originally a *cretaceous Earth*, turned to what it is by *ſubterraneous Heats*, which probably at *Kidlington* may indeed be great, becauſe reflected by the Quarry above it, for that it was never formerly Wood, notwithſtanding its ſpecious and outward Likeneſs, is plain, from its never being found with *Roots* or *Boughs*, or any other ſigns of Wood.

43. At *Marſh-Balden*-Heath, and *Nuneham-Courtney*, they have a ſort of *Earth* of ductile Parts, which put in the Fire ſcarcely cracks, and has been formerly uſed by *Potters*, but, upon what account I know not, now neglected. There is alſo Clay near *Little-Milton* that might very well ſerve for the *Potter's* uſe. And at *Shotover-hill* there is a *White Clay*, the fourth Fold of Earth in the way to the *Ochre*, which during the late Wars, in the Siege of *Oxford*, was wholly uſed for making *Tobacco-pipes* there; and is ſtill in part put to that Service, mixed with another they have from *Northampton-ſhire*. It is alſo of excellent uſe to *Statuaries*, for making *Models*, *Gargills*, or *Anticks*; and containing a hard, but very ſmall Grit; in *poliſhing* Silver, it comes near to *Tripela*.

44. And ſo does an *anonymous* very *white Earth*, found in the Seams of the Quarries at *Teynton*, which at firſt I concluded a *crude Alabaſter*, becauſe I found near it a Piece that was perfect: but, reducing it into a very fine Powder, and putting it over a quick Fire, it would not

[i] Ol. Wormii, *Muſæum lib.* 2. *cap.* 6.

boil

boil like *Alabaſter* Duſt, nor keep the Colour, but turned Reddiſh. Many other Tryals were made with it in *Plaſticks, Poliſhing, Painting, &c.* but my Endeavours ſucceeded in nothing ſo well, as in *poliſhing* ſmaller Silver Veſſels, that could not endure *burniſhing* well; to which it gave a more glorious Brightneſs than *Tripela* would, tho' perhaps not ſo laſting, and not far behind that of burniſh'd Plate.

45. And yet neither this, nor the former will poliſh *Braſs*, nor any thing elſe that is not of its Colour, which has lately engaged my Thoughts in a *Query*, Whether in all other *Metals* the Rule does hold: for I find, that *Sulphur* gives a Luſtre to *Gold;* and that nothing does brighten *Copper* ſo well, as a ſort of Stuff they call *Rotten-ſtone*, alſo ſomething of its Colour.

46. At *Teynton* alſo, within a Spit of the Surface, they dig a ſort of Earth they there call *Lam*, of a Whitiſh Colour, inclining to Yellow; which mixt with Sand, and ſome other Earth, makes the beſt *Earthen-floors* for Ground-Rooms and Barns: it diſſolves as quick as *Fuller's-Earth*, and were it not for a Fault which might poſſible be help'd, it may ſerve their Turns perhaps as well as any they uſe.

47. To theſe may be added another *Whitiſh Earth*, which corruptly, I ſuppoſe from its Colour, is called *Which-Earth;* mixed with Straw, they uſe it for Side-walls and Ceilings, and with Horſe-dung it makes Mortar for laying of Stones: it ſeems to be a natural Mixture of *Lime* and *Sand*, found at *Thame, Waterperry*, and *Adwell*, and ſlakes in Water (like *Gypſum*) without any Heat.

48. At *Milton* near *Adderbury, Great-Tew*, and *Stunsfield*, I met alſo with another ſort of ſpungy Chalk, which though it will not ſlake like the former; yet at *Milton* and *Adderbury* uſed for Pointing, ſeems to bind the Stones of their Walls very well: and theirs at *Great-Tew* being ſomewhat finer, ſerves as well to White their Rooms within (as I ſaw at *Swerford*) as to point Walls without: but at *Stunsfield* there was no body knew of its Uſe.

49. Other Earths there are that I find in this County, for whoſe *Names*, as well as *Natures*, I am quite at a loſs; whereof there is one in Sir *Thomas Pennyſton*'s Park, which for the Strangeneſs of its Qualities deſerves the firſt place. Of Colour it is extreamly White, of little Taſte, and leſs Smell; lying in Veins in a Yellowiſh Clay, like a *Medulla*

about the Bigneſs of one's Wriſt: taken out with a Knife, it falls into a fine Powder, ſomewhat gritty, but of ſo very great a Weight, that its double at leaſt to any other Earth of its Bulk; put in the Scale againſt *White Marble-duſt*, it equall'd its Weight, and exceeded that of *Alabaſter* by almoſt a fourth part: ſet in Sand in a Glaſs Retort, and driven with a quick and ſtrong Fire, it ſublimed to the ſides of the Glaſs a little, but ſtill preſerved its Colour and Weight, till put between two *Crucibles*, one inverted upon the other; well luted and ſtrongly forced in a *Wind-furnace* for about two Hours, it loſt above the Moiety of its Weight: for as I well remember, of *Three-Ounces* put in, there came not out full *One* and a *Half*, and yet nothing ſublimed in the Top of the *Crucible*: the Colour ſtill remained as White as ever, and the Bulk (as near as I could gueſs) the ſame, but now of a ſtrong *ſalt* and *urinous* Taſte; which after Solution, Filtration, and Evaporation, came at laſt, to what People as little underſtood, as what became of its *ponderous* Ingredient.

50. We tried it alſo at *Cornwel*, in Sir *Thomas Penny-ſton*'s *Laboratory*, becauſe of its Weight with divers *fluxing Salts*, in hopes of ſome kind of *metalline* Subſtance, but all (as before) to little Purpoſe. So that I cannot tell what to divine it ſhould be, except the *Gur* of the *Adeptiſts* congealed, which they deſcribe in their Books to be much ſuch a thing, which for want of more Time to ſpend in its Service, I leave to the Diſcovery of future Ages.

51. In the Chalk-pits almoſt every where in the South-Eaſt Parts of *Oxford-ſhire*, they find a ſort of Iron-colour'd *Terra Lapidoſa*, in the very Body of the *Chalk*, which I think they call *Iron-moulds*, and particularly at a place between *Brightwell* and *Berrick*, of an Oval Figure: how they came to be of that Shape, or at all grow, in a Subſtance of ſo different a Nature as *Chalk*, I confeſs to be a *Problem* beyond my knowledge, as well as the uſe they may probably have, which I alſo remit to Poſterity to find.

52. They have an Earth about *Teynton* of a Yellowiſh Colour, adorned all over with *glittering Sparks*, which unleſs they are Particles of the *ſpecular Stone*, or Engliſh *Talc*, with the former muſt be reckoned amongſt the unknown *Earths*.

53. To which add another kind of *Terra Lapidoſa* found about *Thame*, at the Bottom of their Quarries, it is much

of

of the Colour of *Turkiſh Ruſma*, hollow and ſpungy, and full of ſhining Grains like a ſort of *Pyrites*, but of what Nature or Uſe I can no where find. Nor of another ſort of *Clay* found at *Hampton-Gay*, holding a Grit of Golden Colour, much of the Nature of *Pyrites aureus*, only 'tis not found like that in great Pieces, which by our modern Naturaliſts are called *Braſs Lumps*.

54. And thus I had concluded the *Chapter* of *Earths*, but that I think it belongs to this place to mention alſo ſuch Accidents as attend them; and therefore muſt not be altogether Silent of an eminent *Proſpect* about a Mile from *Teynton*, where from a Hill *North-East* from thence, Ten *Market-Towns* in a clear Day may plainly be ſeen. Nor of a ſmall *Earth-quake*, that on the Nineteenth of *February*, 1665. was obſerved at divers Places near *Oxford*; as at *Blechington*, *Stanton St. Johns*, &c. But it ſhall ſuffice juſt to mention it, Relations (with the *Concomitants*) of it, being already publiſhed: [k] One by the Honourable *Robert Boyle* Eſq; and the Other by the Learned Dr. *John Wallis*.

[k] *Philoſ. Tranſact. Numb.* 10, 11.

ADDITIONS *to* CHAP. III.

§. 12. As *Chryſocolla* (another Green Earth, &c.)] Of the Uſe of this Green Earth, ſee *Spadacrene Dunelmenſis*, p. 42, 43.

§. 20. *Lac Lunæ.*] *De Lacte Lunæ*, ſee a large Account in *Schroder*'s Appendix to his *Pharmacopœia*, p. 7, 8.

§. 44. An *Anonymous* very White Earth.] *De Creta Argentaria vid.* Charleton *de Foſſilibus*, p. 2.

§. 46. Makes the beſt Earthen Floors for Ground-Rooms, &c.] An excellent Earth at *Tackley* for Floors, there is a Pattern of it at my Lady *Spencer's* at *Yarnton*.

§. 54. Nor of a ſmall Earth-quake.] Another Earth-quake happened at *Oxford*, *Sep.* 17. 1683. *vid. Phil. Tranſ. Numb.* 151.

CHAP. IV.

Of Stones.

AS in the Chapters of *Waters* and *Earths*, I treated only of ſuch as eminently held ſome *Salt* or *Sulphur*, and were ſome way or other uſeful to *Man*: I intend in like manner, in this of *Stones*, ſtrictly to obſerve the ſame *method*, and take notice only of ſuch, as either plainly ſhew thoſe *Minerals*, and ſupply the *Neceſſities*; or are for the *Ornament*, or *Delight* of Mankind.

2. How all *Stones* are chiefly made out of *Salts*, with a Mixture of *Earth*, and ſometimes of *Sulphur*, was formerly hinted in another place. It remains only, that I conſider them in a more particular manner, and ſhew which they be, and where they are, that hold any of theſe Principles more ſignally than other, which I ſuppoſe by their Effects may beſt be diſcover'd.

3. In the Road from *Oxford* toward *London*, not far beyond *Tetſworth*, in a hollow-way on the riſing of a Hill, I found a ſoft Stone there-about called *Maume*, of a Whitiſh Colour; whoſe *Salt* is ſo free from the Bonds of *Sulphur*, that with the Froſts and Rain it flakes like *Lime*: perhaps half the firing uſed to burn away the *Sulphur* in other *Lime-ſtone*, might ſerve the turn here. An Experiment ſo very likely to be beneficial to the *Country*, that I left it with the Son of the ingenious Improver, Sir *Thomas Tipping*, as a thing not unworthy of his Father's Tryal; but whether he have at all, or but unſucceſsfully made any, I have not yet had the Favour to hear.

4. In the way to *Whitfield*, as I rode thither from *Tetſworth*, I found the Ways mended with this kind of *Stone*, I ſuppoſe becauſe they could get no other, for certainly otherwiſe there were nothing more unfit, than a Stone of ſo looſe and open a *Salt*: much rather with ſuch ſhould they mend their Lands than High-ways, that like *Lime*, *Marls*, and *Chalk*, will flake in the Winter; which I take for ſo ſure a Mark of its *improving* Quality, that I cannot but commend it to the Tryal of the *Country*.

5. And for their Encouragement, let me farther tell them, that at a place called *Hornton*, in the North of this County,

County, they commonly uſe the *Chippings* of the *Stone* dug there in the Quarry, for *Improvement* of the Land, and that not without apparent Succeſs: and yet the Stone is of a much harder kind, than this at *Tetſworth*, and in the Way to *Whitfield*.

6. Amongſt ſome MSS. Notes of *Natural Things*, I met with one of a Stone at *Oriel College*, commonly called (ſays the Author) *The Sweating-ſtone*, at which the Birds were conſtantly pecking and licking; as I gueſs (if ever there were any ſuch thing) for ſome kind of *Saltneſs* they found come from it: I ſay, if ever there were any ſuch thing, for I find it not in this *New*, nor remains there any Tradition of it in the *Old College*. I therefore paſs it by without further notice.

7. However, in ſhort, all Stones have ſo much *Salt* in them, that in ſome meaſure they are an *Improvement* of Land, for though it be ſo cloſe lock'd up with *Sulphur*, that the greateſt Froſts and Rains will not make the Stones run, yet there is ſtill ſuch an Emiſſion of *ſaline* Steams, that ſome *Earths* have their whole Fertility from them. Thus I have ſeen Fields, covered with Flints and Pebbles, produce better Corn than where there were none, which perhaps may be a better reaſon than what is brought by *Pliny* [1], why the Foreign *Coloni*, that came to *Syracuſe* to inhabit there, and practice Husbandry, after they had cleared the ground of all the Stones, could have no Corn till they had laid them again on the very ſame ground from whence they had taken them but juſt before.

8. The like may be obſerved in *Walls* and *Buildings*, where ſeveral ſorts of *Vegetables*, yea *Trees* of great Bigneſs, will thrive and proſper remote from the *Earth*, without any further Nouriſhment, than they have from the *Fertile Stones*, and *Lime* they are laid with, alſo made out of *Stones*.

9. If it be objected, that *Pebbles* and *Flints* alſo hold a *Sulphur*, as well as a *Salt*, and that in all probability Corn and other Vegetables may receive their flouriſhing Verdure, rather from the warm comfortable Steams of that, than the others of *Salt*, I ſhall not ſo much as contend about it, but gladly accept of the Opportunity, by this means, to paſs from *Stones* holding *Salt* only, to ſuch as have alſo a Mixture of *Sulphur*.

[1] *Lib.* 17. *cap.* 4.

10. And

10. And ſuch are all that with *Steel*, or any other fit Body will ſtrike Fire, and therefore by a very fit Name called *Pyrites*, under which *Genus* may be reckon'd, not only *Pyrites* ſtrictly taken, but *Flints*, *Pebbles*, *Sand*, and whatever elſe, by any quick and ſudden Attrition, may have its parts kindled into Sparks: of which as many as I find eminent in their kind, or are fit for uſes, as briefly as may be.

11. And amongſt them (as I think moſt due) for the Prerogative of its Colour, I aſſign the firſt place to the *Pyrites Aureus*, or Golden Fire-ſtone, whereof they find great Plenty in digging of Wells about *Banbury* and *Cleydon*, and ſomewhere in the River at *Clifton* near *Dorcheſter*: Some of them are taken up in great Lumps (and are therefore alſo called *Braſs Lumps*) of uncertain Form, whereof I had very rich ones out of the Well of one *Boreman* of *Cleydon*. But thoſe from *Clifton* aforeſaid ſeem to be *laminated*, and ſome of them ſhot into Angles like *Briſtol Diamonds*, and are mentioned by *Aldrovandus*[m], which he calls, *Pyrites cum fluoribus adnaſcentibus*, and *cujus partes cohærent tanquam lapilli anguloſi*. Theſe ſtrike Fire in great plenty, and for that reaſon formerly have been much uſed for *Carabines* and *Piſtols*, whilſt *Wheel-locks* were in Faſhion; and are alſo very weighty, and perhaps hold *Metal*, which, were it not for the too great Proportion of *Sulphur* (whence ſuch Minerals, ſaith the Learned *Willis*[n], have chiefly their Concretion) that carrieth it away while it melteth in the *Crucible*, by over *Volatilizing* it, which the *Mine-men* therefore term the *Robber*, might otherwiſe be procured with Advantage to the *Owner*.

12. At *Aſton-Rowant*, *Nettlebed*, and *Henley*, and indeed all along the *Chiltern* Country, they have another ſort of *Marchaſite*, within ſide of a golden, and without of a darkiſh ruſty Colour, and therefore at ſome of the afore-mentioned places called commonly *Crow-iron*: this ſort, if broken and laid in the Air, or any other moiſt place, diſſolves into a *Salt* that taſtes like *Ink*, and is, no queſtion, the *Pyrites* of *Kentmannus*[o], which for that reaſon he terms *atramenti parens*. And ſuch a one is the *Pyrites* found at *North-Leigh*, brought me thence by my worthy Friend Dr. *Perrot*, which not only, like the former, gave the Taſte of *Ink*, but expos'd to the *Air* awhile, became cover'd with a white downy *Salt* of the very ſame Taſte,

[m] *Lib.* 4. *cap.* 3. [n] *De Ferment. cap.* 9. [o] *Tit.* 2. *cap. de Succis efflorescentibus.*

which

which I take to be ſuch a natural *atramentum album*, as is ſaid by the ſame *Kentmannus*, *Efflorescere e Pyrite*, *Goslariano*, & *Radebergenſi*[p].

13. Next to theſe, in Order of Nature, as well as Dignity, comes the *Silver Marchaſite* under Conſideration, of a White gliſtering Colour, and to be had in the Bottom of the River between *Clifton* and *Burcot*: this ſtrikes Fire as well as the *Golden Pyrites*, but notwithſtanding it was expoſed in the fitteſt places, yet would never, that I could perceive, ſend forth any *Efflorescence*. Another ſort of them I met with at *Deddington*, taken out of the afore-mentioned *Sulphur* Well there, of as glorious a Colour as the former; but ſeveral times tryed on the beſt Steel I could get, would never yield the leaſt Spark of Fire: whence I rather concluded it to be *Argentum Felium*, or *Cat-ſilver*, but that it would not ſhine in the dark, or conſume in the Fire: However, it may paſs for a *ſterile nitidum*, ſo often mentioned by *Naturaliſts*, it being a glorious *nothing*, of no kind of uſe.

14. That *Flints*, *Pebbles*, and *Sands*, are alſo *Pyrites*, needs no further Evidence, than that they ſtrike Fire, a thing ſo obvious to the meaneſt Obſerver, that to ſpend time to prove it, would be loſt time to the *Reader*; it ſhall ſuffice therefore to enumerate the ſeveral kinds of each, and chiefly to inſiſt upon ſuch as have uſes.

15. All along the *Chiltern* Country of *Oxford-ſhire*, *Flints* are as plentiful as any where elſe; amongſt them the Black one, well poliſh'd, will ſupply the place of the *Lydian Stone*: and at *Henley* they uſe them in making of Glaſs, of which more hereafter in the *Chapter of Arts*. They are found beſide of divers other Colours, and ſome of them ſo *tranſparent*, that they ſeem not only to imitate, but to be the very ſame with *Achats*. I have one, found at *Dorcheſter*, about an Inch and half ſquare, of a *Fleſh Colour*, and ſo *tranſparent*, that it may well enough deſerve the Name of *Sardachates*. Such as this were alſo ſhewn me, by the truly Ingenious, the Right Honourable *James* Lord *Norreys* of *Ricot*, and found (as I think his Lordſhip told me) ſomewhere thereabout, and are, I do not queſtion, the very ſame Stones, that *Kentmannus*[q] indeed places in the Title of *Flints*, yet calls them, *Pellucentes Sardæ colore*.

16. Of *Pebbles* there are ſome alſo *tranſparent* to be had about *Finſtock* and *Nuneham-Courtney*; I found them alſo

[p] *Tit.* 2. *cap. Sory*, & *de Succis efflorescent.* [q] Kentman. *tit* 8.

in the way between *New-Yate* and *Enſham*, but none comparable to what was ſhewn me by that great *Virtuoſo*, the Right Worſhipful Sir *Anthony Cope* of *Hanwell*, the moſt eminent *Artiſt* and *Naturaliſt*, while he lived, if not of *England*, moſt certainly of this *County*, whoſe Houſe I thought ſeemed to be the real *New Atlantis*, which my Lord Viſcount *Verulam* had only in Fancy. The *Pebble*, I remember, was about the Breadth of one's Hand, of a flat Form, and yet not much leſs than an Inch in Thickneſs, ſo clear and pellucid, that no *Chryſtal*, that ever I ſaw yet, excell'd it; ſo that had not its *Maſter*, the cautious *Artiſt*, took care to leave on it part of its outward Coat, few would have believed it had ever been a *Pebble*.

17. Theſe *Pebbles*, when *tranſparent*, make an excellent Ingredient for the *Glaſs-works*; and ſo do thoſe which are *white*, though not *tranſparent*, called by ſome Authors by the Name of *Quocoli*, and perhaps not much different in Nature from the *Cuogolo* of *Ferrante Imperato* [r], and ſuch are the *Pebbles* gathered at *Teſino* [s], with which they make the pureſt Glaſs at the *Moran*.

18. There are about *Goreing* and *Nuneham-Courtney*, a ſort of *Pebbles* of a *Blue-black* Colour, that if poliſh'd, might ſupply the place of *Touch*. And about *Fawler* and *Stunsfield* are a Reddiſh Kind, very hard, and for the moſt part of an Oval Figure, ſo excellent for pitching of *Streets* and *Stables*, and for Painter's *Mullars*, that none can be found more fit and durable.

19. After Conſideration of *Flints* and *Pebbles* apart, let us now take a View of them jointly together, for ſo I found them at *Caverſham*, and *Greenwil*, and in the Way from *Puſhill* to *Stonor-Houſe*, in Cluſters together of divers Colours, and united into one Body, by a *petrified* Cement as hard as themſelves, and moſt of them I believe capable of *Poliure* *. But the beſt of all are in the Cloſe at *Stonor*, of which there are ſome ſo large and cloſe knit, that could the Ingenious Proprietor, *Thomas Stonor* Eſq; find a way to ſlit or poliſh them without too much Charge, he might make him rich *Chimney-pieces* and *Tables* of them, ſo far excelling *Porphyrie* and *Marble*, that perhaps they might compare with the beſt *Jaſpar* or *Achat*. For I have ſeen ſuch as theſe, found about *Hampſted*, curiouſly wrought into Handles of Knives by that eminent Artiſt Sir *Anthony*

[r] Dell'. *Hiſt. Nat. lib.* 24. *cap.* 16. [s] Anton. Neri, *lib.* 1. *cap.* 2. * There is a Quarry of this South of *Wolvercot* Church, but the Cement ſo ſoft, that it will not poliſh.

Cope;

Cope; to which few *Achats* might be compared, perhaps none preferr'd, either in the Poliſh, or Variety of Colours.

20. The Ingenious Mr. *Ray*, amongſt other Obſervations made in his Journey through *Italy*, &c. tells us, That in the Church of the *Benedictines* at *Ravenna*, the *Monks* did ſhew him two *Marble-pillars*, for which they ſaid, the *Venetians* offer'd them no leſs than their utmoſt Weight in Silver. But the like, he ſays, he had ſeen elſewhere, at the Library at *Zurich*, and at *Verona* in our *Ladies Chappel*, in the Garden of *Seignior Horatio Giuſti:* their Generation at firſt, ſays he, was out of a Maſs of ſmall Flints and Pebbles, united by a *Cement* as hard as themſelves, and capable of *Poliure;* which *Cement*, he gueſſes, was ſeparated by degrees from a *Fluid* wherein the Stones formerly lay *: which I take to be a Deſcription ſo agreeable to ours, that nothing more need be ſaid to promote their Trial.

21. Hither alſo muſt be reduced a courſer ſort of *Smiris*, dug up in the Pits at *Whately* Towns-end, of a cinereous Colour, hard and rough, and ſtriking Fire as well as a Flint. The beſt ſort of *Smiris* ſerves for ſeveral Uſes; but ours is fit only to cut the harder ſort of Stones, that the Sand commonly uſed will not ſo well do, and perhaps for ſome other inferior Uſes.

22. And to theſe muſt be added the ſeveral ſorts of *Sands*, which upon violent Motions all ſtrike Fire, and are commonly, and ſometimes promiſcuouſly uſed, for *Building*, *Hour-glaſſes*, and *cutting* of Stone. But ſome there are of a more peculiar and conſiderable Uſe, and ſuch is that dug in the Pariſh of *Kingham*, which after 'tis waſhed and duly ordered, ſo perfectly reſembles *Calis-ſand*, that it ſerves and is ſold for the very ſame: it is not found in every place, but they have ſigns (like *Miners*) to know where it lies; *viz.* a ſort of Stuff that looks almoſt like *Rotten-Wood*, which if they meet with under the Turf, they ſeldom fail of the Sand a little deeper; which they firſt cleanſe from Rubbiſh, and the greater Stones, by putting it through a courſe Sieve, then they waſh it in a Trough and lay it a drying; which when ſufficiently done, they ſeparate again by a finer Sieve, the courſer part of it from the finer: the courſer ſerves for whetting of *Sithes*, but the finer ſort for ſcouring *Pewter*, for which purpoſe it ſeems 'tis ſo very

* *Mr.* Ray's *Obſervations Topographical*, &c. *p.* 383.

excellent, that the Retailers ſell it for a penny a Pound, which amounts to above Twenty Shillings a Buſhel.

23. Other *Sands* there are alſo of very Good Uſe, to give a Conſiſtency and Body to *Glaſs*; the Naturally Whiteſt are at *Nettlebed* and *Shotover*, but the fineſt by much at *Finſtock* and *Ledwell*, which when waſhed and cleanſed, at leaſt equal the former. The firſt of theſe has been tried with Succeſs at the Glaſs-houſe at *Henley*: and any of the reſt, perhaps, might prove as good *Tarſo* as any they have from *France*, or is uſed in *Italy*, were they but in place where they might be tried.

24. From *Sands*, I proceed to *Lapis arenarius*, commonly called *Free-ſtone*, and uſed in Building; of which we have as great Plenty and Variety in *Oxford-ſhire*, peradventure as in any other part of *England*. The Quarry at *Heddington*, ſcarce two Miles from *Oxford*, ſupplies us continually with a good ſort of *Stone*, and fit for all Uſes but that of *Fire*; in which, that of *Teynton* and *Hornton* excel it. In the Quarry it cuts very ſoft and eaſy, and is worked accordingly for all ſorts of Building; very porous, and fit to imbibe Lime and Sand, but hardening continually as it lies to the *Weather* *.

25. Of it in general, there are two ſorts; one that they call *Free-ſtone*, and the other *Rag-ſtone*: but theſe again are ſubdivided into ſeveral *Species*, according as they are cut or put to divers Uſes. The *Free-ſtone*, if cut *cubically* into very great Blocks, is then by way of Eminence called nothing but *Free-ſtone*; but if cut into *Oblong*, or other ſorts of *Squares*, of a leſſer Bulk, they then call it *Aſhler*; and the Fragments of theſe of Inequilateral Multangular Figures, *Scabble-burrs*. The two firſt are uſed in principal Buildings, and the laſt, if ſquared, is ſometimes mixed with *Aſhler* in *Range-work*, or by it ſelf in that they call *Planten-work* in the meaner Buildings: but when not ſquared at all, is commonly thrown in amongſt *Rag-ſtone* for Walling; for which only, and making *Lime*, that ſecond ſort is good, except it riſes flat in the Bed, and then 'tis worth the while to hew it for paving.

26. Of the *Stone* afore-mentioned conſiſts the Groſs of our Buildings; but for *Columns*, *Capitels*, *Baſes*, *Window-lights*, *Door-caſes*, *Cornicing*, *Mouldings*, &c. in the chiefeſt Work they uſe *Burford-ſtone*, which is whiter and harder, and carries by much a finer *Arris*, than that at *Heddington*:

* Shirbourn *Stone in* York-ſhire *has the ſame Qualities, ſee* Britan. Bacon. *p.* 155.

but

but yet is not ſo hard as that at *Teynton*, nor will it like that endure the Fire, of which they make *Mault-kills*, and *Hearths* for *Ovens*; but then they take care to *ſurbed* the Stone, *i. e.* ſet it Edg-ways, contrary to the Poſture it had in the Bed, for otherwiſe there will be ſome danger of its flying.

27. Beſide the Fire, it endures the Weather, for of this mixed with another ſort dug near *Whately*, on the *Worceſter* Road ſide, as it paſſes betwixt *Holton* and *James Tyrrill*'s Eſq; are all the oldeſt *Colleges* in *Oxford* built; as *Baliol*, *Merton*, *Exeter*, *Queens*, *Canterbury* (now part of *Ch. Ch.*) *College*, *Durham* (now *Trinity*) *College*, *New-College*, *Lincoln*, *All-Souls*, *Magdalene*, *Braſen-noſe*, and the outermoſt Quadrangle of St. *John Bapt. Coll.* yet it endures not the *Weather* ſo well as *Heddington*, by reaſon, I ſuppoſe, of a Salt it has in it, which the Weather in time plainly diſſolves, as may be ſeen by the Pinnacles of *New-College* Chappel, made of this Stone, and thus melted away.

28. And yet the Moiſture of Water has no ſuch power over it, but that they make of it *Troughs* and *Ciſterns*, and now of late *Meſh-fats* for *Brewing*; Firſt hinted, 'tis true, by Mr. *Bayly* of *Ducklington*, but practiced by one Mr. *Veyſey* of *Teynton*, who had the firſt, made him by one *Strong* a Maſon, which it ſeems did anſwer Expectation ſo well, that it has ſince obtained in many other Places. Of theſe, that generous and courteous Gentleman, Sir *Compton Read* of *Shipton* under *Whichwood*, has one that holds about ſixty five Buſhels, drawn home with no leſs than one and twenty Horſes; they ordinarily *meſh* in it three Quarters of Mault, but can, when at any time Neceſſity requires, *meſh* five at a time: the Dimenſions of which Veſſel of one ſingle Stone, taken within the Hollow and abating its Thickneſs, becauſe of its vaſt unuſual Magnitude, I thought fit to note, and give as followeth;

Long, 2 Yards $\frac{1}{8}$.
Broad, 1 Yard $\frac{1}{8}$ and $\frac{1}{2}$ an Inch.
Deep, 1 Yard $\frac{1}{2}$.

yet much larger than this might be had from the Quarry, were there uſe for them, or could Portage be contrived; for as I was informed by many credible Witneſſes, there was one ſingle Stone dug in this Quarry, containing no leſs than *three hundred Tuns*. And another in the Year 1673. meaſured by Mr. *Veyſey*, of an *hundred* and *three Tuns*, accounting ſixteen Feet Cubic to the *Tun*.

29. O-

29. Other Quarries there are alſo of conſiderable uſe, as *Bladen*, *Little-Milton*, *Barford*, and *Hornton*, whereof the laſt has the beſt Fire-ſtone * of any in the *County;* ſome of it ſeems to have Iron-colour'd Veins, that receive (as I have ſeen) a tolerable poliſh, and is the *Stone* I mention'd before, whoſe *chippings* (laid on it) improve their Land, by reaſon I ſuppoſe of the *Salt* there is in it, which may alſo be the Cauſe it endures *Fire* ſo well.

30. At *Cornbury-Park* there was a ſort of *Stone*, the Quarry whereof is now quite exhauſted, that never would ſweat in the moiſteſt *Weather*, of which the Pavement of the *Hall* in the Houſe there, ſtill remains as a ſufficient Teſtimony: of this, did it riſe in great Blocks, might poſſibly have been made very good *Mill-ſtones*, the not ſweating being a principal Qualification in all *Stones* whatever uſed for *Corn-mills*.

31. But before we take leave of Materials for Building, we muſt not forget that the Houſes are covered, for the moſt part in *Oxford-ſhire* (not with Tiles) but *Flat-ſtone*, whereof the lighteſt, and that which imbibes the Water leaſt, is accounted the beſt. And ſuch is that which they have at *Stunsfield*, where it is dug firſt in thick Cakes, about *Michaelmaſs* time, or before, to lie all the *Winter* and receive the Froſts, which make it cleave in the *Spring* following into thinner *Plates*, which otherwiſe it would not do ſo kindly. But at *Bradwell* (near the Grove) they dig a ſort of *Flat-ſtone*, naturally ſuch, without the help of *Winter*, and ſo ſtrangely great, that ſometimes they have them of ſeven Foot long, and five Foot over: with theſe they commonly make Mounds for their Cloſes, and I have ſeen a ſmall *Hovel*, that for its whole Covering has required no more than one of theſe *Stones:* and ſome of them are of ſo hard and cloſe a *Texture*, that I have known them by *Painters* of very good Skill, preferr'd before *Marble* for grinding their *Colours*.

32. To *Stone* uſed in Building they ſometimes add *Lime*, which becauſe, for the moſt part, is here made of *Stone*, muſt alſo be handled in this place; for which they count the hardeſt *Rag-ſtone* beſt, but any will make it, ſays the Learned *Willis* [t], except ſuch as is made up of a Reddiſh kind of Gravel: the beſt ſign of it here, as well as in *Ireland*, has been ſufficiently hinted in the former Chapter, to be that *White* and *Spungy* kind of *Matter*, that ſticks

[t] *De Ferm.* c. 10. * *A peculiar Uſe of ſuch Fire-ſtone, ſee* Carr's *Remarks of* Holland, *p.* 90.

to

to the *Stones* in the Caverns of the Rocks, and ſo plentifully found at *Cornwell* and *Whately*; at *Hanborough*, *Fawler*, and in *Cornbury* Park. Not but that very good *Lime* may be had from Stone that ſhews not the leaſt of this ſign, as at *Bladen*-Quarry, and many other places; but that none makes better than the Stone that has it, except hereafter it may be found true here, what *Lachmund* [u] aſſerts of the *Biſhoprick of Hildeſheim*, where the beſt (he ſays) is made of the hardeſt Stone, *quod varia in ſe Conchylia continet*, ſet full of *Petrified* Shell-fiſh: for if ſo, our beſt *Lime-ſtone* muſt be at *Charleton* and *Langley*; at *Little-Milton*, and *Shotover-Foreſt*, in the Quarry there on the North-ſide of the Hill, not far from the way to Mr. *James Tyrill*'s; at all which places, the Stone is ſtuck full of *Cockles*, *Eſcallops*, and *Oyſters*, of which more hereafter in the following Chapter.

33. Beſide the Stone that is uſed for the *Subſtance*, there is other that ſerves for the *Ornament* of Building, a ſort of *Grey Marble* dug in the Pariſh of *Blechington*, in the Lands of the Right Honourable *Arthur* Earl of *Angleſey*: Of this there are ſeveral *Chimney-pieces* and *Pavements*, in his *Lordſhip*'s Houſe there, well worth the notice; as alſo at the Right Honourable the Earl of *Clarendon*'s at *Cornbury*. And of this are the Pillars of the *Portico*'s at St. *John*'s *College* in *Oxford*. They make beſide of it *Tomb-ſtones* and *Tables*, and of late alſo *Mill-ſtones*, good enough for the *Oyl-mills*; but not for the *Corn-mills*, becauſe of its ſuppoſed Sweating, to which this is ſubject in rainy Weather, like all other *Marbles*.

34. Some other *Stones* there are of inferior uſe, which yet muſt by no means be paſt by in Silence; whereof I know one ſo like the *Tripoli-ſtone*, in Colour, Conſiſtence, and for all its Uſes, that I cannot but think it of the very ſame kind: to *Silver* it gave that very laſting Brightneſs, that another piece of Plate that was tryed againſt it, receiv'd from the Gold-ſmith's *Tripoli-ſtone*, and proved it ſelf in all reſpects ſo much the very ſame; that would any thing pleaſe us not far fetch'd, perhaps there might be no further need of ſending any more to *Africa* for it.

35. Nor muſt I forget the *Iron-ſtone* at *Shotover*, though occaſionally mentioned, and its Uſes declared, in the immediately preceding *Chapter of Earths*: ſo called, not from any ſuch Metal that it holds, but meerly I ſuppoſe from

[u] Lach. Ὀρυκτογραφία, *Sect.* 3. *cap.* 1.

the

the Colour 'tis of. This I tryed with the *Load-ſtone* and *Aqua-fortis*, thinking thereby, if it held any *Iron*, it muſt needs have confeſt it to one of thoſe two. But I ſince have found the *Experiments* but ill applied, for neither will *Cavala* (which is the beſt *Iron-ore*) anſwer either of them: So that I do not now condemn it to be no *Iron-ore*, upon thoſe grounds as at firſt, but from other conſiderable Differences it has from the known *Iron-ores* of *Gloceſter-ſhire*, and *Suſſex*.

36. There is alſo near *Thame* on *Cuttlebrook-ſide*, another *Iron-colour'd Stone*, but more ſpungy than the former, and including within it a Blackiſh kind of *Cinder;* the moſt like, of any thing I yet have ſeen, to *Magneſia* (in the Glaſs-houſes, called *Maganeſe*) only it wants of its cloſeneſs of Texture and Weight: what it ſhould be, or for what uſe likely, to me I confeſs is wholly unknown, unleſs I may call it the *Siderites* of *Pliny* [w]. I therefore deſiſt to ſay more about it, but commend it to the Diſcovery of future Ages.

37. At *Fyfield-merry-mouth*, in the Field above the *Cave* made by Mr. *Bray*, in the Bank near the Brook, I found a *Stone* of a light Yellow Colour, made up of glittering *Lamellæ*, or Plates, which, according to the Deſcription of *Georgius Agricola* [x], ſeems not unlike the *Samian Stone*, found alſo about *Haſda* in the Biſhoprick of *Hildeſheim*, and good only for poliſhing *Silver* and *Gold*. Such laminated Stones by *Nicholas Steno* [y] are thought to be nothing but *Incruſtations*, made in the Confines of a *Fluid* and *Solid*, an Opinion that ſeems to come near to the Truth. However it be, it is ſomething *formed*, and may well ſerve to uſher in the next Chapter, which I have wholly reſerved for *Formed Stones*.

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[w] *Hiſt. Nat. lib.* 37. *cap.* 10. [x] *Foſſil. lib.* 5. [y] *In Prodromo.*

CHAP.

CHAP. V.

Of Formed Stones.

AFTER *Stones* made to ſerve the *Neceſſities* of Man, and not brought into *Form*, but by the Tool of the *Artiſt*, come we next to conſider thoſe that are *naturally Formed*, and ſeem rather to be made for his *Admiration* than *Uſe*. Whereof the World is beautified with ſo great Variety, that as on the one Hand, I cannot but wonder at the great Providence of God, and his moſt perfect Workmanſhip, that has thus created the *Univerſe* for Man's *Delight* as well as *Uſe*: ſo on the other, I cannot but reprehend the petulant Deſpiſers of this innocent ſort of Learning, who in Deriſion have called it, *picking of Stones*; as if what the Omnipotent and moſt Wiſe God hath thought fit to *create*, were not worth the Conſideration of weak Man. But let ſuch malicious Scoffers know, that 'tis their Pride and Ignorance that has engaged them in this Cenſure: for as God has created them, ſo ſome things muſt be written of meerly for Information, as well as others that tend to our Advantage. Beſide, who knows but theſe things may have a Uſe, that hereafter may be diſcovered, though not known at preſent. Since then their Exceptions are ſo ill grounded, that they vaniſh in a manner as ſoon as named, 'tis but juſt that I pay them in their own Coyn, and ſlight their Judgment more than they dare do my *Subject*.

2. In the handling whereof, though in a particular *Chapter*, I ſhall obſerve the Method of the whole *Eſſay*: And firſt treat of ſuch *Formed Stones*, as either in name, or thing, or both, relate to the *Heavenly Bodies* or *Air*; And next, ſuch as belong to the *Watery Kingdom*: After them, ſuch as reſemble *Plants* and *Animals*, whether in the whole, or parts. And laſtly ſuch *Stones*, wherein, contrary to all Rule, *Dame Nature* ſeems to imitate *Art*; for ſo far from Idleneſs (ſays a very good Author [z]) is Nature in the Bowels and dark Caverns of the Earth, that She continually plays the *Geometrician* there, and preſents us with Bodies, almoſt of all kinds, in *Stone*.

[z] Encelius, *de re Metallica, cap.* 7.

3. Amongſt the *Stones* that have relation to the *Heavenly Bodies*, the firſt place I think may be reaſonably given to ſuch as reſpect the *greater Lights*; upon which account, ſince the *Heliotrope* is not found here, much leſs the *Gemma Solis*, mentioned by *Pliny* *: The *Selenites* or *Moon-ſtone* muſt have the Precedence, which we find in great plenty in a Bluiſh Clay that lies above the Rock at *Heddington* Quarry, and in digging Wells, *&c.* at *Hampton-Gay* and *Hanborough*.

4. Where by the way let it be noted, that I intend not by the *Moon-ſtone*, the Grey *Tephrites* of *Pliny* [a], that grows like a *Creſcent*, by the *Greeks* called *Menois*; nor that other ſtrange Stone mention'd by *Pliny* and the *Britiſh* Poet *Marbodus* [b], corporeally containing the Figure of the *Moon*, increaſing and decreaſing, like that in the *Heavens*: but a Stone ſo called, not from its Figure, but (as 'tis honeſtly confeſt by *Geſner* [c] and *Agricola* [d]) that only repreſents the Image of the *Moon*, in all its *Phaſes*, but beſt at Full, juſt as it were in a Glaſs, and therefore by Authors is ſometimes called alſo *Lapis ſpecularis*.

5. And thus much will our *Selenites* do, if obverted to the Rays of the *Moon* in right Angles; which if all that is really intended by the Name, (for the very ſame reaſon) I know not why it may not as well be called the *Sun-ſtone* too, ſince it equally repreſents the one as well as the other.

6. But though it hath nothing of the *Moon* in Figure, yet it is commonly found of a certain Shape, in circuit *Hexangular*, but with two of the ſides broader and more depreſſed, in the Form of a *Rhomboides*, as in *Tab.* 2. *Fig.* 1. *a.* and therefore the learned *Steno* [e] (which I think its beſt Name) not unfitly ſtiled it *Selenites Rhomboides*. Beſides the two larger *Rhomboideal* ſides, it hath eight others of an oblong Square, in all making up a *Decahedrum Parallelipipedum*; whereof the Squares of the two ſhorter ſides of the great *Rhomboides*, one is ſometimes a *right angled inequilateral Parallelogram*, as in *Tab.* 2. *Fig.* 1. and the other a *Rhomboid*; and ſometimes again they are both *Rhomboids*, but thoſe on the longeſt ſides of the great *Rhomboids*, as far as I have obſerved, are always *Trapeziums*.

7. As to its Texture, the Grain runs ſeveral ways, but ſlits the eaſieſt of any of them in a *Planum*, to the more

* *Nat. Hiſt. lib.* 37. *cap.* 10. [a] *Nat. Hiſt. loco citato.* [b] *Muſæum Calceolarium, ſect.* 3. [c] *De Figuris Lapidum, cap.* 2. [d] *De Natura Foſſilium, lib.* 5. [e] *In Prodromo, pag.* 74.

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depreſſed *Rhomboideal* ſides; which way it may be cut into very thin Plates, by *Aldrovandus*[f] called *Scaias*, for which reaſon 'tis called alſo *Alumen Scaiolæ*; not that it has the Taſte of *Alum*, or any thing like it. It breaks alſo another way into ſmall *Threds*, of which it ſeems chiefly to be compoſed, much after the manner of *Amiantus* or *Talc*, but its parts not ſo pliant as either of them: theſe *Threds* lie for the moſt part, cloſe and parallel to the longer ſides of the great *Rhomboids*, as they are deſcrib'd in *Tab.* 2. though I have ſeen them ſometimes alſo parallel to the ſhorter; but they ſeem not to be continued the whole Breadth of the *Rhomboid*, but divided by other parallel Lines of a greater Diſtance, that ſometimes are ſubtended to the *acute* Angles of the *Rhomboid*, but moſt commonly run in a more oblique poſture, as may likewiſe be ſeen in *Fig.* 1. *a.* In theſe Lines its Parts are alſo eaſily ſeparated, but breaking ſhort off, and nothing ſo flexible as they are when broken as the Threds run. According to ſome peculiar Poſitions of theſe Parts, there are ſome of them that really repreſent the *Rain-bow*, whereof I have ſome with the Colours as vivid, as I ever ſaw any in a Glaſs *Priſm*. Of theſe *Aldrovandus* had one out of *Cyprus*, of which he has given us a Cut in his *Muſæum*[g]; but it being in Man's Power to make theſe *Rain-bows* as he pleaſes, I think even thoſe we find thus, to belong of the two, rather to Caſualty than Nature, and therefore paſs them by.

8. There is, 'tis true, a ſort of them of a different Figure, not ſo eaſily to be met with, with only two depreſſed ſides, and ſcarce any *Angles*, but what are ſo *obtuſe* that they deſerve not the Name, in the whole almoſt of an *Oval Form*, as repreſented *Tab.* 2. *Fig.* 1. *b.* This ſort of *Selenites*, beſides the Shape, is alſo ſo different from the former in Texture, that it ſlits not like that into Plates or Scales, parallel to the moſt depreſſed ſides, but quite contrary, parallel to the Thickneſs only; which I take to be a *character* abundantly ſufficient, to make it of a different *Species* from the other, though in the reſt of their Texture they be much the ſame.

9. About the Origin of this Matter, Authors differ much; amongſt whom *Galen*[h] makes it the Dew of Heaven, congealed, as he ſays, by the Light of the *Moon*, and therefore calls it by the Name of *Aphroſelenum*, but reſtrains

[f] *Muſæum Metallicum, lib.* 4. *cap.* 33. [g] *Lib.* 4. *cap.* 33. [h] *Lib. de Simp. Med. ad Patern.*

the Performance of the Feat to *Egypt*. *Encelius*[i] thinks it a ſort of Moiſture of the Earth, ſo concreted, that like *Chryſtal* it will not diſſolve, but remains, as it were, an indiſſoluble *Ice*, whence the *Germans* took Occaſion to call it *Glacies Mariæ*. But that learned and induſtrious Inveſtigator of Nature, *Georgius Agricola*, differs from them all, and makes it a Product of *Lime-ſtone* and *Water*, *Gignitur* (ſays he) *ex Saxo calcis cum pauca aqua permiſto*[k]; and thus I find it to grow here with us at *Heddington*, in a Blue Clay that lies over the Quarry, whoſe outermoſt Cruſt is a hard *Lime-ſtone*.

10. The learned and ingenious *Steno*[l] in his *Prodromus*, thinks *Chryſtals* and *Selenites*'s, and all other Bodies having a ſmooth Surface, to have been already hardened, when the Matter of the Earth, or Stones containing them, was yet a *fluid*; if ſo, indeed *Agricola* muſt be out in his aim. But I cannot ſee how our Bed of Clay at *Heddington*, above the Quarry at ſome places ten Foot thick, could have been a *fluid* within ſome Ages paſt; and yet of the *Selenites*'s of the *Rhomboideal* Figure, I find ſome as ſmall as a Barley-Corn, ſome about three Inches, and others again, at leaſt, half a Foot long: ſo that they ſeem rather to have ſome Succeſſion of Growth, and now to be in *fieri*; than to have been all together already hardened, when the Clay that now contains them was but a *fluid*. Beſide, they then would have been found cloſe together, whereas we here meet with them, ſome higher ſome lower, and mix'd all together, little and great; and the very Clay it ſelf, as 'tis broken to pieces, ſeeming ſomewhat inclinable to this ſort of Form.

11. A third ſort we have of them, alſo found here at *Heddington*, in the very ſame Clay, as alſo at *Cornwell* and *Hanwell*; with two ſides like the former, more depreſſed than the other, in compaſs alſo *hexangular*, (the thinneſt ſides of them being divided by a ridge) but in the Form, not of a *Rhomboid*, but an *inequilateral Parallelogram*, as in *Tab.* 2. *Fig.* 1. *d**. Some of theſe we find ſingle, lying in any Poſture, the biggeſt ſcarce an Inch broad, or above four Inches long; and others joined together in a certain Poſition, with their flatteſt ſides towards each other, and Edges downward, and their Ends conſtantly meeting in a *Center*. The ingenious Sir *Thomas Pennyſton* has obſerved, that at *Cornwell* they

[i] *De Lapidibus & Gemmis, lib.* 3. *cap.* 56. [k] *De Natura Foſſilium, lib.* 5. [l] *Prodromi prop.* 1. *obſervat.* 1. * There are ſuch as theſe in *Spain*, *Thuringia*, and *Cappadocia*. *Aldrovand.* lib. 4. cap. 33.

gene-

generally lie in *Ternaries*, but here at *Heddington* we find them oftentimes more, and not unfrequently *Irradiating* all manner of ways into the Form of a *Globe*, the ſeveral *Selenites*, like ſo manny *Radii*, all pointing to the *Center*, as is plainly repreſented by one half of ſuch a *Globe* of them, in *Tab.* 2. *Fig.* 1. *c.*

12. The Texture of theſe is ſomething agreeable, and ſomething different from the *Rhomboideal Selenites*, for they all cleave in a *planum* to the flatteſt ſides, and ſeem to conſiſt of ſmall *Threds* like them, but ſome have the *Threds* running obliquely to the whole Square, as in the lower part of *Fig.* 1. *d.* others have them meeting in the Middle of the flat in an *obtuſe* Angle, as in the upper part of the ſame *Figure.*

13. The Meeting of which *Threds* ſo in an *obtuſe* Angle, I thought at firſt might have very well occaſioned that repreſentation of the *gramen ſegetum panicula ſparſa, Fair panicled Corn* or *Bent-graſs*, to be ſeen in moſt, if not all of this kind (which like a *Fly* or *Spider* in *Amber*) ſeem to be included at each end of them, with the *Panicles* turned contrary to each other: But I quickly found my ſelf miſtaken, by ſlitting of ſeveral, whereby I diſcovered, that the *Threds* ſometimes ran quite contrary to the ſpreading *Panicles* of the *Corn* or *Bent-graſs* (ſo very well counterfeited in many of them) and therefore not likely to give that Form: And that the thing it ſelf was nothing but Clay, thus prettily diſperſed in the Form of a *Bent;* which beſide the Pleaſure of the Surprizal, gave me another Argument againſt *Steno*'s Opinion, *That* Selenites's *were all hardened, when their Beds they now lie in were nothing but* Fluids: for it cannot well be conceived how the Clay ſhould any way get to be within them, had it not had a Being before the *Selenites;* and thus included at the time of their Formation.

14. Of *Formed Stones*, though there are few that have any, yet ſome there are of eminent uſe, and ſuch is our *Selenites* or *ſpecular Stone;* good taken inwardly for many Diſtempers, number'd up by *Cerutus*[m], *Aldrovandus*[n] and *Galen*[o]; and externally to take away the *Blemiſhes of the Face.* In ancient times, before the Invention of *Glaſs*, it was of very great uſe for *Lanterns* and *Windows*, it being eaſily ſlit into very thin Plates, yet loſing nothing thereby of its

[m] *In Muſæo Calceolario, ſect.* 3. [n] *Lib.* 4. *cap.* 33. *Muſ. Metal.* [o] *De Simp. Med. Facult. lib.* 9.

Dia-

Diaphaneity. Of this, ſays *Agricola*[p], are the Church-windows made at *Caſwick* in *Saxony*, and *Merſeburg* in *Thuringia*, which certainly muſt be of a different ſort, from what is deſcribed by *Aldrovandus*[q] and *Wormius*[r]: the one whereof ſays 'tis *imbrium impatiens*; and the other, *humido corruptibilis*. I expoſed this of ours many rainy Days, but could not find that from the Weather it received any damage, and therefore gueſs it to be the ſame deſcrib'd by *Agricola*: I ſteeped it likewiſe many Days in Water, but found not any ſenſible Alteration of its Body, though it gave the Water both an odd Smell and Taſte. As for *Lanterns* and *Windows*; ſo they anciently uſed it in making of *Bee-hives*, that through it they might ſee the *Bees* Operations, as in *Glaſs-hives* now: an Invention by ſome People taken for new, though very well known in the Days of *Pliny*[s].

15. Out of burnt *Selenites* is made the beſt *Gypſum*, for *Plaiſtering*, *Images*, *Fret-works*, &c. When burn'd, it turns to a pure White *Calx*, by the *Italians* called *Geſſo*, from the Latine word *Gypſum*: Of this they make thoſe curious counterfeit *Tables*, like Marble in-laid with divers *Precious Stones*, in the Forms of *Animals*, *Plants*, &c. The Way of making them is taught us by *Kircher*[t]; but there is a Friend of mine has a better *Method*, who intends very ſpeedily to make ſome Attempt to make them in *England*, and of *Engliſh* Materials. And ſo much for our firſt *Formed Stone*, *Selenites*, on which I had not dwelt ſo long, but to ſupply the Defects of other Authors, whoſe Deſcriptions of it are but mean and imperfect.

16. After the *Moon-ſtone*, the *Aſteriæ*, or *Star-ſtones*, next offer themſelves to our Conſideration, which, to avoid the Confuſion of other Authors, I ſhall only call thoſe, whoſe whole Bodies make the Form of a Star, as in *Tab.* 2. *Fig.* 2, 3. in oppoſition to the *Aſtroites*, which in the whole are irregular, but adorned as it were with a *Conſtellation*, as in *Fig.* 4, 5, 6 and 7.

17. The *Aſteria* or *Star-ſtone*, otherwiſe by *Geſner*[u] called *Spragis Aſteros*, or *Sigillum Stellæ*, becauſe of the Uſe it is ſometimes put to, is plentifully found in the Fields at *Cleydon*, the moſt Northern Pariſh of the whole County, Northward from the Church, and particularly on the Fur-

[p] *De Natura Foſſilium, l.* 5. [q] *Muſ. Metal. lib.* 4. *c.* 33. [r] *In Muſæo, cap.* 7. [s] *Nat. Hiſt. lib.* 21. *cap.* 14. [t] Kircheri *Mundus Subterr. lib.* 12. *ſect.* 5. *part.* 3. *cap.* 3. [u] *De Figuris Lapidum, cap.* 2.

long

Joints are knit together, their Ridges and Furrows being alternately let into one another. In the *Center* of the *five Angles* is a ſmall Hole, conſpicuous enough in moſt of them; but in ſome I have obſerved the ſmall Hole on one ſide, and a little Prominency on the other, fit as it were to be let in to the *Central-hole* of the next *Joint*, after the manner of the Ridges and Furrows of the *Angles*.

20. Many of theſe longeſt jointed *Aſteriæ*, have certain *Joints* ſomewhat broader and more prominent than others, dividing the whole Body as it were into certain *Conjugations*, of Two, Three, or more *Joints;* which *Conjugations*, ſays the Learned and Curious Obſerver, Mr. *Liſter* [y], are marked (as he calls them) with Sets of *Wyers*, which though I could not perceive in any found at *Cleydon*, yet when I put a *Column* of them into *Vinegar*, at thoſe very places I could perceive *Bubbles*, ſtanding as it were at the *Orifices*, where formerly theſe *Wyers* were in all likelihood inſerted, by no means otherwiſe viſible to the Eye. And whereas 'tis certain, that moſt of theſe in other Counties, if of any conſiderable Length, are not ſtraight, but viſibly bent and inclining; theſe are not now, or ſcarce appear to have ever been ſo, though poſſibly this may rather be referr'd to the Shortneſs of thoſe I met with, or Ill-luck in finding none of the kind, than to any different Operation in Nature here, from her uſual Performances in other places.

23. They are found alſo about *Swerford* of the ſame Colour, but nothing ſo plentifully, or large as theſe at *Cleydon*, for the biggeſt I found there was ſcarce an Inch round; in all other reſpects they correſpond with them, only the *Conjugations*, made by the Prominence of ſome *Joints* beyond the reſt, are more viſible in theſe than in any at *Cleydon*.

22. Of *Aſtroites* or *Starry-ſtones*, ſuch as in Bulk are *irregular*, but adorned all over with many *Stars*, there are no leſs in this County than Four ſeveral ſorts: Whereof, in two, the Stars are in *mezzo Relievo*, prominent, and ſtanding outward, with the *Striæ* or *Streaks* deſcending from the Center at the Top, on all ſides to the Rock on which they grow. Some of theſe are of a larger, as *Tab.* 2. *Fig.* 4. and others of a ſmaller kind, as *Tab.* 2. *Fig.* 5. both found in the Quarries of *Rubble-ſtone*, dug only for mending the High-ways, not far from the Foot of *Shotover* Hill, on the Right-hand of the Road from *Oxford* to *London*, in the Pariſh of *Heddington*.

[y] *Philoſoph. Tranſact. loco citato.*

them all together in that admired quality of their *moving in Vinegar*, which, in ſome meaſure, is found in the *Aſtroites*, but is much more ſignal in the *Aſteriæ* or *Star-ſtones*: for the *Aſtroites* muſt be broken in very ſmall pieces before they will move, though put in good *Vinegar*, but the *Aſteria* will move, not only in a whole *Joynt*, but two or three of them knit together, which I have often ſeen done by the Yellow ones of *Cleydon*, though of greater Bulk than thoſe of other places; which joined with ſome other Circumſtances, hereafter to be mention'd, has given me ground to ſuſpect, if not conclude, that though it may be true enough what Mr. *Liſter* [b] has aſſerted, as well of all *Foſſils*, as the *Stones Aſtroites*, that as many of them as *Vinegar* will corrode as a *Menſtruum*, do all move in it; yet none of them reach the Effects it has on the *Aſteria*, to which therefore I muſt crave leave to allow ſomewhat more than either to the *Aſtroites* or any other *Foſſils*.

27. For beſide the *progreſſive motion* to be ſeen in thoſe, the *Aſteria* has a Motion of *circumgyration*, and moves briſker and longer than any of them; for though it hath been ſteeped in *Vinegar* three or four Days, yet upon Infuſion of a freſh *Acid*, it ſtill ſends forth many little *Bubbles* as at firſt, from underneath it, in the Inſtant of its Motion: which ſeems to argue, that it has it not wholly from the Corroſion of the *Menſtruum*, but, in part at leaſt, from ſome other Principle, which I take to be a *Spirituous*, yet *corporeal Effluvium*, continually flowing from it, when provoked by an *Acid*.

28. Whereof there is *one*, which hereafter ſhall be publick, found out indeed by chance, at the Houſe of Mr. *Wildgoſe*, *Phyſician* at *Denton*, and an ingenious *Chymiſt*, whoſe Aſſiſtances (in gratitude) I muſt ever own: where not having *Vinegar* ſo ready at hand, we thought fit to make uſe of another ſuitable *Liquor*, which ſo effectually excited the *Effluviums* of the Stone, that they aſcended in a Cloud to the Surface of the *Menſtruum*, and there ſettled exactly in the Form of the *Stone*, and that not only of a ſingle *Joynt*, but a whole *Column* of them together: which perſwaded me, that *Cardan* [c] was not ſo far out of the way, nor deſerved ſo much the Reproofs of *Aldrovandus* [d] and others, for aſſerting the Motion of ſuch *Stones* to ariſe, from Vapours expelled from them by the Power of the *Vinegar*.

[b] *Philoſoph. Tranſact. numb.* 100. [c] *Subtilit. lib.* 5. [d] *Muſæum Metallic. lib.* 4. *cap.* 65.

Since

Since perhaps his Poſition (though not ſo well made out) comes nearer to Truth than any his *Animadverters* have brought for it ſince.

29. After the *Stones* ſome way related to the *Celeſtial Bodies*, I deſcend next to ſuch as (by the *vulgar* at leaſt) are thought to be ſent us from the *inferior Heaven*, to be generated in the *Clouds*, and diſcharged thence in the times of *Thunder* and *violent Showers*: for which very reaſon, and no other that we know of, the ancient *Naturaliſts* coined them ſuitable Names, and called ſuch, as they were pleaſed to think fell in the *Thunder*, *Brontiæ*; and thoſe that fell in *Showers*, by the Name of *Ombriæ*: Which though amongſt other Authors has been the only reaſon why theſe have had place next the *ſtellated Stones*, yet I think it is due to moſt of them, by a much better pretence, having ſomething upon them that rather reſembles a *Star* of five points, than any thing coming from the *Clouds*, or the Fiſh *Echinus*; to the Shell whereof, deprived of its Prickles, *Ulyſſes Aldrovandus*[e], and ſome others, have compared them, and therefore called them *Echinites*. However, I think fit rather to retain the old Names, though but ill applyed to the Nature of the things, than put my ſelf to the trouble of inventing new ones.

30. Of *Brontiæ* therefore, or *Ombriæ* (call them which you will) we have ſeveral ſorts in *Oxford-ſhire*, which yet all agree in this, that they are a ſort of *ſolid irregular Hemiſpheres*; ſome of them *oblong*, and having ſomewhat of an *Oval*; others either more elevated, or depreſſed on their *Baſes*. All of them divided into *five parts*, moſt times inequal, rarely equal, by five *Rays* iſſuant from an *Umbilicus* or *Center*, deſcending from it down the ſides of the Body, and terminating again ſomewhere in the Baſe. They are never found in Beds together, like ſome other Formed Stones, nor that I have yet heard of (ſays the Ingenious Mr. *Ray*[f]) in great Numbers in one place: but in the latter I muſt take leave to inform him, that though I think it in the main to be true, yet that at *Tangley*, *Fulbrook*, and all about *Burford*, they are found in ſuch plenty, that I believe it were eaſy, in a little time, to procure a Cart-load of the firſt ſort of them, carefully exhibited in *Tab.* 2. *Fig.* 9, 10.

31. Whoſe innermoſt Texture, though it ſeem to be nothing more than a courſe Rubble-ſtone, yet is thinly

[e] *Muſæum Metallic. lib.* 4. *cap.* 1. [f] Obſervat. Topograph. *&c. p.* 116.

caſed over with a fine *laminated* Subſtance (the *Plates* lying obliquely) much like *Lapis Judaicus*: In Form they are flat, depreſſed upon the *Baſis*; In Colour generally Yellow, their *Rays* made of a double Rank of *tranſverſe* Lines, with void Spaces between the Ranks, viſible enough on the Top of the Stone, *Fig.* 9. but not ſo diſtinguiſhable on the Bottom, *Fig.* 10. the whole Body of the Stone, as well as the Spaces included within the *Rays*, being elſewhere filled with *Annulets*, much more curiouſly wrought by *Nature*, than by the Tool of the *Graver*.

32. The *Center* of theſe *Rays*, by *Pliny* called *Modiolus*, by *Ariſtotle*, *Umbilicus*[g], is never placed on the Top of the Stone, but always inclining to one ſide, as that at the Bottom does to the other; the *Axis* lying obliquely to the *Horizon* of the Stone. Which gave Occaſion to a Learned Society of *Virtuoſi*, that, during the late Uſurpation, lived obſcurely at *Tangley*, and had then time to think of ſo mean a Subject, by conſent to term it the *Polar-ſtone*, having ingeniouſly found out, by clapping two of them together, as ſuppoſe the *Fig.* 9, and 10. that they made up a *Globe*, with *Meridians* deſcending to the *Horizon*, and the *Pole* elevated, very nearly correſponding to the real *Elevation* of the *Pole* of the place where the *Stones* are found.

33. The two next, repreſented *Fig.* 11, 12. like the former, being flat and depreſſed on their *Baſes*, having alſo ſome reſemblance of a *Star* of 5 points, were therefore thought fit to be placed next. Whereof the 11 indeed is a beautiful Stone, found ſomewhere in the *Chiltern* about *Aſton-Rowant*, whoſe inner Subſtance, though of *black Flint*, to outward view is of a cinereous Colour, and adorned by Nature with ſomewhat more than ordinary. For beſide the *Modiolus*, and the iſſuing *Rays* made of double ranks of *points*, with *tranſverſe Lines* interceding them, it is alſo ſet with other *points* ſurrounded with double *Annulets*; on each ſide the *Stone* with a ſingle, and from the Terminations of the *Rays* with double ranks. The *points* thus ſurrounded, are neither deeply excavated, nor any thing prominent above the *Superficies* of the Stone; but the *Rays* as they are but ſhort (not extending above half way to the *Rim* of the *Stone*) ſo they are deeply hollowed down within it, wherein it differs,

34. From that of *Fig.* 12. found in the Fields about *Iſley*, whoſe *Rays* like thoſe of the *Polar Stones*, are made

[g] *Lib. de Mundo ad* Alexandrum.

of

TAB II

Chap. 5.

ad pag. 93.

fig. 6.

fig. 12

fig. 8.

fig. 11. 12.

fig. 16. 19.

fig. 16. 8.

fig. 22.

fig. 22.

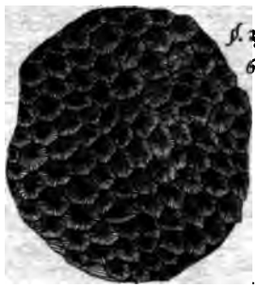

fig. 23. 24.

fig. 24.

fig. 24.

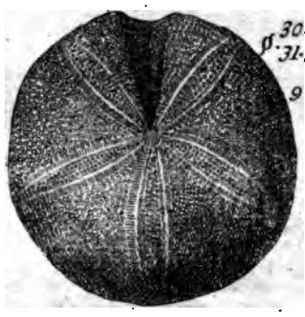

fig. 30. 31. 32.

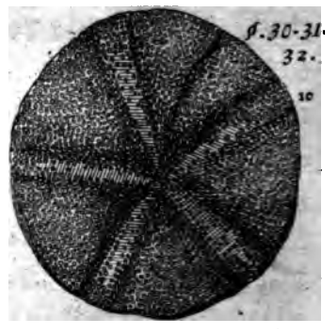

fig. 30. 31. 32.

fig. 33.

fig. 33.

fig. 35.

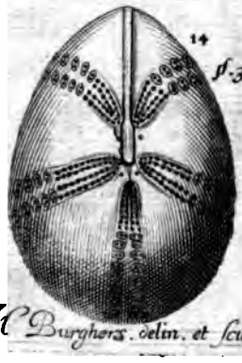

fig. 36.

To the right Worsp.ll
The learned and curious
Artist Sr JOHN COPE Baron.
This second Table
of formed STONES whereof ij 9th
& 10th are found in his own grounds
is humbly dedicated by
R. P. L. L. D.

M. Burghers. delin. et sculp.

of double Ranks of *tranſverſe Lines*, whereof the outermoſt are much the longer, and extended likewiſe to the *Rim* of the *Stone*; its Subſtance alſo like that ſeems to be a Yellow Rubble, but not caſed that I can perceive with any ſuch *laminated* Subſtance, or adorned with *Annulets*, yet the *Umbilicus* of ſome of them, is more beautiful than theirs, it being ſometimes divided and foliated like a *Roſe*. And ſo much for the *Brontiæ* depreſſed on their *Baſes*.

35. Let us now proceed to others of a more elevated kind, whereof thoſe expreſſed *Fig.* 13. found ſomewhere in the *Chiltern*, by the Country People called commonly *Cap-ſtones*, from their Likeneſs to a *Cap* laced down the ſides, are of any the moſt Uniform. For the *Centers* of theſe, both at the Top and Bottom, are on all Hands Equidiſtant from the *Rim* of the *Stone*, and the *Rays* interceding the *Centers* being alſo Equidiſtant, cut it exactly into five equal parts; which in none of the former, nor thoſe that are to follow, either by reaſon of their Shape, or *Excentricity* of their *Modioli*, can poſſibly be found. The *Rays* of theſe are made of two Rows of *Points*, ſet pretty deep in the Body of the Stone, out of which you are to ſuppoſe, according to *Aldrovandus* (who reſembles this *Stone* to a diſarmed *Echinus*) proceeded the Prickles that *Animal* is fenced with.

36. As alſo that other ſomewhat of an *Oval* Form, *Tab.* 2. *Fig.* 14. whoſe *Center* correſponds with the Figure of the *Stone*, and is not concluded within the *Rays*, as in the former, but is extended in a Ridge to the Rim of it: from which *Center* there deſcend as it were double *Rays*, made up of two double ſets of *Points*; which, expanding themſelves, as they draw towards the *Rim*, at about Mid-way are ſurrounded with ſingle *Annulets*, which each of them including two *Points* apiece, are therefore all of an *Oval* Figure. Its Subſtance within is a *black Flint*, though without it appear of a *cinereous* Colour, and was found in the Fields between *Ewelm* and *Brightwell*.

37. At *Pyrton* I met with another of theſe, a *black Flint* within, and *cinereous* without, of *Oval* Figure and *Center* like the former, but the deſcending *Rays* from it of a quite different kind: for whereas they were made of *Points* hollow and deep, theſe on the contrary are all *prominent*; and whereas they deſcended in double *Branches* and *Points*, which near the *Rim* were included in *Oval Annulets*; the double and *protuberant Points* of theſe, about Mid-way

to

to the *Rim* are turned into ſingle, though much larger ones, as in *Tab.* 3. *Fig.* 1. which now deſcending in ſingle *Points*, and meeting in an *Umbilicus*, not in the Middle of the *Baſis*, but ſo much to one ſide, that the Branches upon this account being ſome longer, ſome ſhorter, and croſſing the *Baſis* in a much different manner, make a Figure ſomewhat reſembling a *Flower-de-lis*, as in *Tab.* 3. *Fig.* 2. which had been all I ſhould have ſaid concerning theſe *Brontiæ*, but that perhaps it may not be unworthy our Notice,

1. That the *Protuberancies* of this laſt *Stone* are all hollow, which when broken, look juſt like the hollow *Points* of the former; which has given me ſome ground to ſuſpect, that the deep *Points* of that may have formerly been *Eminencies* like the raiſed *Points* of this, and are only broken down by the Injuries of Time.
2. That none of theſe *Brontiæ* have been deſcribed before, but the 12 and 13 of *Tab.* 2. which indeed are ſomewhat like the 8 and 10 of *Aldrovandus*[h]: and,
3. That though ſome Authors have thought them the petrified Shells of the *Echinus Spatagus*, or *Briſſus* of *Ariſtotle*, I have Reaſon to think (as ſhall appear in a fitter place) that they will prove nothing leſs.

38. Beſide the *Brontiæ* of the Forreign *Naturaliſts*, we have others, which here in *England* we call likewiſe *Thunder-bolts*, in the Form of *Arrows-heads*, and thought by the Vulgar to be indeed the Darts of Heaven: which only in Conformity to my own Country (though for as much Reaſon as the fore-going *Brontiæ*) I have placed amongſt the *Stones* related to the *Heavens*.

39. From their Form, by all *Naturaliſts* they are called *Belemnites*, from the *Greek* word Βέλεμνον *Telum*, which indeed there are ſome of them repreſent pretty well. We have of them in *Oxford-ſhire* of divers ſorts, yet all of them I find agreeing in this, that their *Texture* is of ſmall *Striæ*, or Threds radiating from the *Center*, or rather *Axis* of the Stone, to the outermoſt *Superficies*; and that burn'd, or rub'd againſt one another, or ſcraped with a Knife, they yield an Odour like raſped Horn.

[h] *Lib.* 4. *cap.* 1. *p.* 455.

40. In

40. In Magnitude and Colour they differ much, the biggeſt I have met with yet, being that expreſt in *Tab.* 3. *Fig.* 3. in *Length* ſomewhat above four Inches, and in *Thickneſs* much about an *Inch* and ¼. This was found in the Quarries in the Pariſh of *Heddington*, hollow at the Top about an Inch deep, and filled with a kind of gravelly Earth; and has the *Rima* or *Chink*, which *Aldrovandus* and *Boetius* ſay all of them have; but I find it otherwiſe, as ſhall be ſhewn hereafter. Of Colour it is *Cinereous*, inclining to *Yellow*, and if vehemently rubbed, is the only one amongſt all that I have, that like *Amber* takes up *Straws*, and ſome other light Bodies.

41. There are of them alſo of a *Bluiſh* Colour, found at *Great-Rolwright* in a *Bluiſh* Clay, of about a Finger's Length, hollow at the Top, and have ſome of them, inſtead of one, three *Clefts* or *Rimæ*, but neither ſo plain or long as the former, they aſcending from the *Cuſpis* ſcarce half up the Stone: two whereof are ſhewn *Fig.* 4. and the third hidden behind the *Sculpture*; which may make ſome amends for that of *Fig.* 5. which is of Colour *cinereous* and hollow at the Top, but has no *Chink* at all; whereof there was a Bed found in digging the *Sulphur*-Well at Mr. *Lane*'s of *Deddington*, as was mentioned before in the Chapter of *Waters*.

42. To which add a *fourth* ſort, found in great plenty in the Gravel-pits without St. *Clements*, in the Suburbs of *Oxford*, very few of them hollow at the Top like the former, but radiated like a *Star* from a cloſer *Center*, as in *Fig.* 6 *. which made *Geſner* [i] think it to be the *Aſtrapias* of *Pliny*, though expreſly he ſays, 'tis of a *White* or *Azure* [k], whereas this is always of an *Amber* Colour: yet draws not Straws, is ſomewhat tranſparent, and may therefore paſs for a ſort of *Lapis Lyncurius*; not that it has Original from the Urine of that *Beaſt*, for we have plenty of the Stones here, and none of the *Animals*, but from the unpleaſant Smell it has when burn'd or bray'd; like the Urine of *Cats*, or ſuch like Ramiſh Creatures, whereof the *Lynx* perhaps may be one. Theſe, moſt of them, are made tapering to a Point like the former; yet ſometimes having a blunter Ending, and the *Chink* on both ſides, I thought fit rather to ſhew it in that Form than the other, as in

* Theſe not being hollow at the Top, nor containing any other Stone, Gravel, or Earth, ſome call the Male *Belemnites*: the three former being of the Female Kind.

[i] *De Figuris Lapidum, cap.* 5. [k] *Nat. Hiſt. lib.* 37. *cap.* 11.

Fig. 6.

Fig. 6. where the *Cleft* runs, not only the whole Length of the *Stone*, but quite under the end, and half way up the other ſide.

43. Many are the *Medicinal* Uſes of this *Stone*, mentioned by *Boetius*, *Aldrovandus*, and *Geſner*: Whereof the chief are, 1. For the *Stone*, for which (inſtead of the *Eurrhæus*) 'tis uſed in *Spain* and *Saxony*. 2. For *Exſiccation* of *Wounds*, in *Pruſſia* and *Pomerania*. And 3. for *Ocular* Diſtempers in *Horſes*, in all parts of *England*.

44. Thus having run through the ſuppoſititious *Stones* from *Heaven*, I next deſcend to the *Atmoſphere*, or inferior Air, immediately encompaſſing the terraqueous Globe; which though incapable of it ſelf to be repreſented in Stone, yet having met with ſome related to its *Inhabitants*, I mean the *Feathered Kingdom*, I thought fit to give them place before thoſe of the *Waters*.

45. Whereof the firſt and only one, repreſented in *Sculpture*, *Tab.* 3. *Fig.* 7. has perfectly the Shape of an *Owl*'s Head, which becauſe not mention'd by any Author that I know of, I thought good to exhibit, and call *Lapis Bubonius*; it is a *Black Flint* within, and *cinereous* without, and was found near to *Hardwick*, in the Pariſh of *Whitchurch*.

46. To which I might have annex'd the Stone *Hieracites*, found frequently in the Quarries in the Pariſh of *Heddington*, but is not the *Hieracites* mention'd by *Pliny* [l], which he ſays alternately changes its Colour; but of *Geſner* [m], to whoſe Figure of it, ours is exactly like: but neither his nor ours reſembling any thing of a *Hawk*'s, or other Bird's *Feathers*, ſo much as to deſerve a *Cut*, or the *Reader*'s View; I have ſaved *my ſelf* the Expence, and *him* the Trouble.

47. Next the *Air*, the *Stones* that concern the *Watery Kingdom*, fall in order of Nature under Conſideration, whereof there are ſome that ſeem to be nothing elſe but meerly concreted Drops of *Water*, found plentifully in the Fields about *Kircklington* and *Northbrook*, which I touched on before under *Petrifications*, and promiſed to treat of more largely here. By Authors they are called *Stalagmites*, and ſeem either to be generated of *Pearls* of Dew, ſettled on the *Stones*, as they lie in the Fields, which firſt being coated over with the ſmall terrene *Atoms* that are flying in the *Air*, and by that means kept in their own Form for ſome conſiderable time, are thus at length fix'd into a friable kind of *Stone*, by the Petrifying Steam that comes from

[l] *Lib.* 37. *cap.* 10. [m] *De Figuris Lapidum*, *cap.* 13.

the

the Earth; or elſe they are *Exſudations* out of the Stones themſelves, whence are formed thoſe *Excreſcencies* like *Warts* in *Animals*: neither of which ſeem unagreeable to their Deſcription in *Tab.* 3. *Fig.* 8.

48. But beſide the *Stalagmites*, there are other *Concretions* made of much the ſame Materials, *viz.* of a cold ſort of *Water*, thicken'd with *Terrene* and *Petrifying* Particles; which yet becauſe of their different mode of Generation, have obtained a different, and more ſuitable Name: And ſuch are the *Stones* made of nothing but ſuch *Water*, as it drops from the Roofs and Caverns of the Rocks, and therefore called *Stalactites*, or *Lapides ſtillatitii*; which, if the Drops deſcend by the ſides of the Rocks, and comply with the uſual Raggedneſs of them, are then indeed of various and the rudeſt Forms, and by the Work-men called *Craume* [n]. But if the Drops deſcend from the Top of a Vault, or any more prominent part of a Rock, in a direct Line and free from the ſides, they are commonly then of a *Pyramidal* Form, as in *Tab.* 3. *Fig.* 9. which is the Repreſentation of a *Stone* of about nine *Inches* long, of a Yellowiſh Colour, as it hung from the Rock in *Heddington* Quarry, where without doubt it was produced much after the ſame manner as *Icicles* at the Ends of Spouts in Winter, by a gradual Deſcent and Congelation of the Drops.

49. Hither alſo muſt be referred all ſorts of *Spars*, by the *Miners* called *Cawke*, and the *Latines*, *Fluores*; which (ſay they) yet retain ſo much of a *fluid*, that with the Heat of Fire, like *Ice* in the *Sun*, they melt and flow: an Effect, which though I could not find it had upon ours, without the help of *Salts*, yet not doubting at all, but that once they had been *fluids*, I could not but accordingly give them place here.

50. Whereof there is ſcarce any Rock whatever, whether *Metalline* or *Vulgar*, which has not ſome kind or other of them, ſhot in its Seams or other Hollows, which according to their different Subjects or *Matrixes*, are ſometimes of different *Colours*, and frequently of divers *Figures*.

51. As for *Colours*, I have not obſerved above two ſorts in *Oxford-ſhire*, a light Yellow, and a Pearl-colour'd White, whereof there are ſome in the Quarries near *Shotover*, ſo clear and hard, that they come not much behind the *Briſtol-ſtones*, and are in Figure (though had from the

[n] *Of this there is a Quarry between* Heathrop *and* Enſton, *called* Broad-ſtone *Quarry, that has great plenty.*

ſame Quarry) as various as *Diamonds*; ſome of them being compriſed in *ſeven*, others in *nine*, others in *eleven*, and ſome in *thirteen* planes, as may eaſily be computed from their *Trigonal*, *Tetragonal*, *Pentagonal*, and *Hexagonal* Pyramids, repreſented in *Tab.* 3. *Fig.* 10. to which, adding the *Planes* of their *Columns*, and the *Planes* of their *Baſes*, whereby they are fix'd to their Subjects, thoſe Numbers of *Hedræ* muſt needs be concluded.

52. As to the *Origin* and *Texture* of *Spars*, I take them to be much of the ſame with *Chryſtals*, (though we ſeldom find them of their *Hexagonal Figure*, or their *Columns* ever interceding two *Pyramids*) and that they differ in Luſtre and Hardneſs according to the more cloſe or looſe *Texture* of the *Stones* whereon they ſit, and out of which they have ſweat, as through a *Strainer* or *Colander*. Though it muſt not be denied, but what is aſſerted by the ingenious and obſerving *Steno*[o] concerning *Chryſtals*, may have place alſo in the Increaſe and Growth of theſe, which he ſays (whatever may be the manner of their firſt Delineation) is by external Appoſition of new *Chryſtalline* Matter to the external *Planes* of the already delineated *Chryſtal*; which he alſo obſerves, not to be joyned to all its *Planes*, but for the moſt part to the *Planes* of the Top only; nor to theſe all at a time, nor in the ſame Quantity. Whence it is, that the extream or top *Planes* of *Spars* as well as *Chryſtals*, are ſeldom or never equal, and not always *triangular*, but riſing with unequal *ſides* and *angles* from the *Planes* of their *Columns*, as in that ſeparate piece of *Spar* or *Chryſtal* near *Fig.* 10. which I take to be *Arguments* ſufficiently concluding the *Similitude* of their Growth and *Texture* of parts, notwithſtanding the *Planes* of the *Columns* of *Spars* are not ſtreaked, nor ſo plainly ſhew the places of Appoſition, as they do on *Chryſtal*; which Streaks, for the *Reader*'s more ready Apprehenſion, are therefore cut on the ſeparate *Column* near *Fig* 10. though otherwiſe indifferently to be underſtood, either for *Spar* or *Chryſtal*.

53. Some of theſe *Spars* fall ſo little ſhort, either of *Chryſtals* or *Briſtol Diamonds*, either in *Luſtre* or *Hardneſs*, that we may very well admit what is ſaid of them by *Aldrovandus*[p], that they are *Gemmæ inchoatæ, & non perfectæ*. And that *Boetius*[q], in all likelihood, may have hit the mark, who doubts not but they are made of the

[o] *Prodrom. de Chryſtallo propoſitionib.* 1, 2, 3. [p] *Muſæum Metall. lib.* 4. *cap.* 76. [q] *De Lapid. & Gem. cap.* 304.

ſame

Earl of *Clarendon*, at *Langley* in the Confines of *Whichwood-foreſt*, where there is a Quarry of very hard Stone, wholly compoſed of a cloſe Union of *Cockles*, ſcarce any of them exceeding a Pea in Bigneſs, and ſtreaked circularly to the Hinges of the Valves, as in *Tab.* 3. *Fig.* 12. they are none of them hollow, but firmer within, than they are to the Bed of Stone where they lie; and yet even to that they are ſo cloſely knit, that the Maſs receives a very good poliſh, inſomuch that his *Lordſhip* intends to pave the new *Chappel*, now building at *Cornbury*, with it.

57. This ſort of Marble is mention'd by *Steno*[f], and called (as he ſays) by the *Italians*, *Nephiri*; whereof there is alſo a very good ſort at *Charleton* Town's End, upon the edge of *Otmoor**, differing from that of *Langley* only in this, that the groſs of the Stone is ſomewhat Whiter, the *Cockles* larger, and not ſo thick ſet. However, of ſo firm and cloſe a Texture, that of it they make *Tomb-ſtones*, *Tables*, *&c.* ſo curiouſly ſpotted and ſet with Rings, that it very much pleaſes the Eye of the Beholder, and has already gotten (though but lately found) a Reputation at *Oxford* and the parts adjacent.

58. Of this ſort of *Stone* moſt certainly it was, though ſomewhat perhaps of a ſofter kind, and different Colour, that *Pauſanias* informs us (as quoted by *Agricola*) the Monument of *Phroneus*, and many other Works, were made at *Megara*. *Megaræ in ſaxo valde albo, & reliquis lapidibus molliore, undique inſunt conchæ marinæ, ex quo, &c.* are the Words of *Agricola*[t]; for which very reaſon this ſort of Stone is there called *Conchites*, and ſince by *Johnſton* and *Fred. Lachmund*[u] (from the place where found) *Lapis Megaricus*.

59. There is another ſort of it in the Quarries near *Adderbury*, thick ſet with *Cockles* in their full proportion, as in *Tab.* 3. *Fig.* 13. Some of them are wonderfully Chryſtallized, and beautiful to the Eye, but not being ſo finely cemented together, but that a Knock will looſen or make them leap from their Beds; and many of them being hollow, or filled with brittle *Spar*; the Stone by no means will receive a Poliſh, and upon that account fit for no other work than to mend the *High-ways*, or ſome other mean uſes. Nor can I inform the *Owners* of theſe Quarries of any bet-

[f] *In* Prodrom. * It is much prized by the *Painters* at *London*, it having Grit that cuts their Colours much better than other Marble. Mr. *Aubrey*'s Notes. [t] *De Natura Foſſilium*, *lib.* 7. [u] Ὀρυκτογρ. *Hildeſheim.* ſect. 3. cap. 15.

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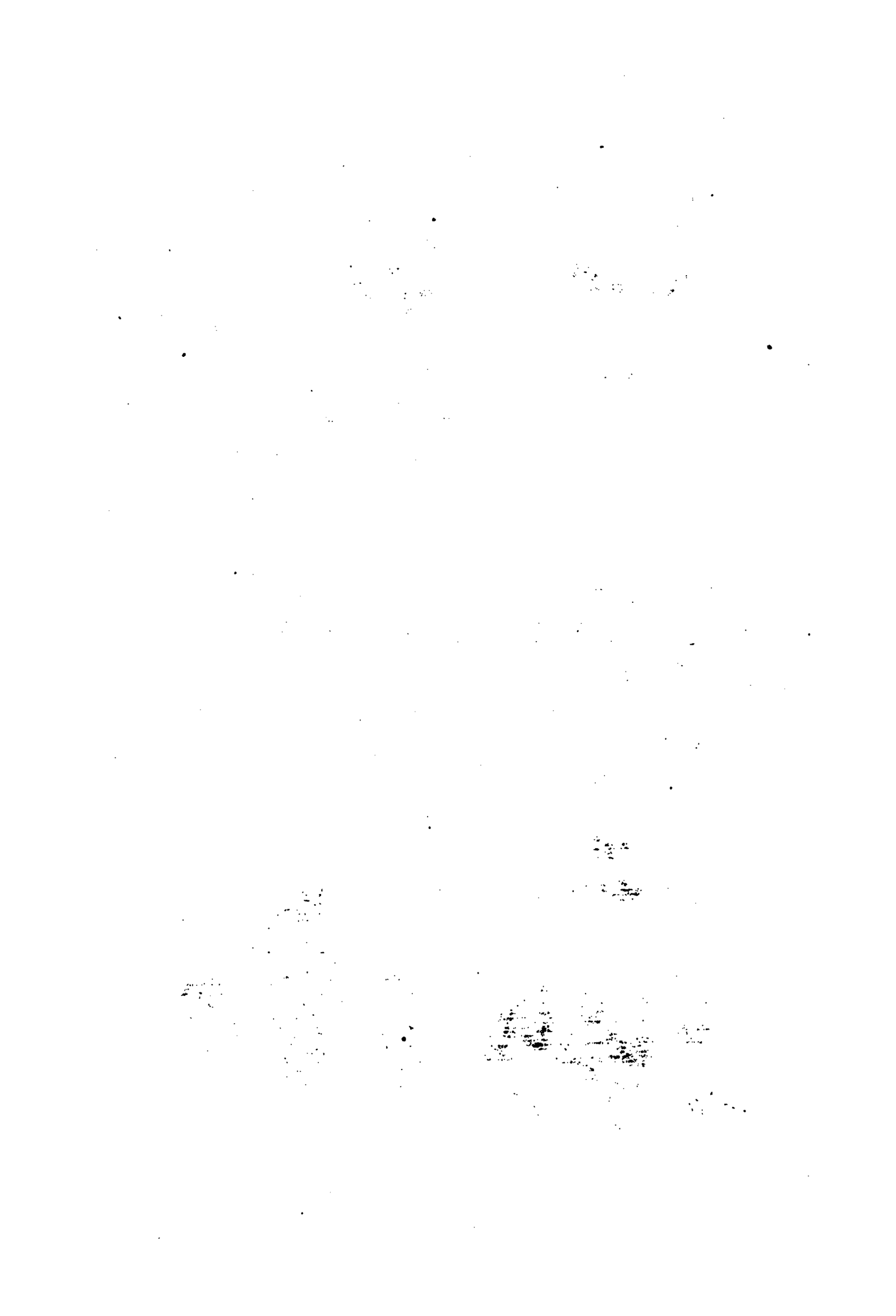

TAB III

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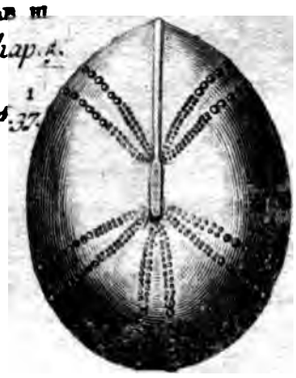

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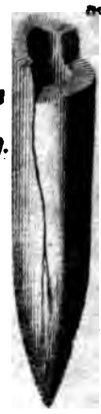

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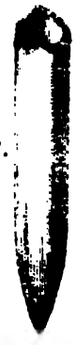

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13

To the right Hon^ble
Henry Earle of Clarendon
Viscount CORNBURY &c
Baron HYDE of Hindon &c
This Table
of formed STONES (whereof the 12th sort
is dug in his LORD^ps owne lands) in
memory of his LORD^ps many and great
favours, is gratefully consecrated
by R. P. L. L. D.

Michael Burghers Delin: et Sculp:

ter that it may have, except they ſhall think fit to burn it for *Lime*, for which I dare promiſe it muſt needs be excellent.

60. And ſo is the Stone of *Oſtracomorphos*, made of Heaps of *Oyſters* cemented together, and found plentifully enough on *Shotover-hill*, not far from the way to *James Tyrril's* Eſq; of which I have forborn to give any *Draught*, it being eaſily conceived from the manner of the *Cockles*, thus heaped together in the two former *Cuts*.

61. To theſe ſucceed the *Stones* reſembling *Sea-fiſh* of the *Teſtaceous* kind, not found in *Cluſters* after the manner of the former, but in a ſeparate State: of theſe there are ſome curiouſly lineated, and others plain, with but few or no ſuch Ornaments, which yet I muſt treat of promiſcuouſly together, becauſe there are of both ſorts in ſeveral *Species*.

62. Of theſe again ſome are of a *Turbinated* Form, and others *Bivalvular*, reſembling the double ſhell'd Kind, joined together with an Hinge, and yet theſe ſometimes found all with the Shells apart, and ſometimes again none of them ſo.

63. Amongſt theſe the *Turbinated* or *Wreathed* kind of *Stones* by the *Greeks* called *Strombites*, from στρέφω *torqueo*, to wreath (which is always *Helically*, and for the moſt part from the right Hand to the left, and *Spirally* from a greater to a ſmaller Ending) are but ſeldom found: However, I have met with both the ſorts of *Agricola* [w], the greater, which he ſays is ſometimes nine Inches long, but ours indeed not much exceeding five, of a plain *Superficies*, as in *Tab.* 4. *Fig.* 1 *. and the leſſer wanting of half an Inch in length, but curiouſly ſtriated, as *Fig.* 2. both found in the Quarries in the Pariſh of *Heddington*, of a cinereous Colour, ſomewhat inclining to Yellow, and of a harder Conſiſtence than the Stone wherein they lie.

64. But as for ſuch as repreſent the *Bivalvular Conchæ*, ſuch as *Cockles*, *Eſcallops*, *Oyſters*, &c. we have very great plenty, as well of Kinds as Individuals. The *Conchites* or Cockle-ſtones found in this County, may alſo be divided into the greater and leſſer; whereof the greater are ſome of them ſtriated with large *Striæ*, and larger *Furrows*, deſcending as it were from a *Center* at the Top, and expanding themſelves to the *Rim* of the Stone; having alſo ſix or

[w] *De Natura Foſſilium, lib.* 7. * *Vid.* Buccinum *lapideum læve* Fabii Columnæ, *Aquatilium & Terreſt. obſerv. cap.* 22.

ſeven

ſeven *tranſverſe ſimple Lines*, bent circularly to the Hinge or Commiſſure of the *Valves*, as in *Tab.* 4. *Fig.* 3. which is a Stone without, of a dark *Cinereous* Colour, but within, a *Black-flint;* found ſomewhere in the *Chiltern* about *Henley* upon *Thames*, and kindly beſtowed on me by the Ingenious Mr. *Munday* Phyſician there.

65. Some there are again, whoſe *Striæ* alſo deſcend from the Hinge or Commiſſure, but not in ſtraight Lines, but bent and undulated, and much broader than the former, as in *Tab.* 4. *Fig.* 4. which though in Magnitude it fall ſhort of the *Concha Tridacna* of *Aldrovandus* (ſo called it ſeems becauſe they made three Mouthfuls a-piece) yet in Form it ſhews to be ſo very like, as may be ſeen alſo in *Johnſton*, *Tab.* 13. that were it not a *Stone*, I muſt pronounce it the ſame [x]. This I found at *Great-Rolwright* in a Bluiſh Clay, whereof, and of nothing elſe, it ſeems to be concreted; for it does not much exceed it in Hardneſs, and ſtill participates moſt of that Colour, though covered with a bright and ſhining *Subſtance*, by the Naturaliſts called *Hoplites*, or *Armatura:* of which more hereafter when I come to *Cornu Ammonis*, a Stone, the moſt of any adorned with that *Subſtance*.

66. Another ſort there is found at *Heddington* Quarries, whoſe Lines or *Striæ* are not drawn like the two former, from the Commiſſure of the *Valves* to the *Rim*, but tranſverſly and circularly from one ſide of the Stone to the other; the leſſer Circles having place next to the *Commiſſure*, and the greater next to the *Rim* of the Stone, as in *Tab.* 4. *Fig.* 5. which ſeems much to reſemble the *Concha Rugata* of *Rondoletius* [y], with *Valves* ſwelling very high; of Colour it is Cinereous, inclining to Yellow, not hollow within, but a ſolid *Stone*, and of much the ſame Texture with the Rubble of the Quarry.

67. Of the ſmaller *Conchites* there are alſo ſeveral ſorts, differing in *Colour*, *Lineation* and *Valves;* for at *Teynton* and about *Burford*, where they are found in the Fields, they are moſt of them *Yellow*, with their *Valves* riſing high and approaching to a Round *: but at *Glympton*, where they are only found in a Spring that riſes in a Wood about a Mile Southward from the Church, they are much more depreſſed and of a *Cinereous* Colour; but both having

[x] *Vid.* Concham *imbricatam minimam* Aldrovandi, *de Teſt. lib.* 3. *cap.* 43. [y] Rondoletius *de Teſtaceis*, *lib.* 1. *cap.* 25. * Theſe made Red-hot and put into Drink, are accounted in this Country a preſent Remedy for a Stitch.

their

their Lineations from the *Commiſſure* to the *Rim*, they are both therefore repreſented under one Draught, *Tab.* 4. *Fig.* 6.

68. How it ſhould come about, that theſe *Cockle-ſtones* of *Glympton* ſhould only be found at the Fountain-head, and no where lower in the Stream, nor that I could hear of, in the Fields about, I muſt acknowledge to be a Knot not eaſily looſed. Some have thought them brought out from amongſt the Rocks, at the Bottom of the Hill where the Spring riſes; others that they are formed by a peculiar Virtue of the Water, as it runs over the rubble Stones that lie near its *exit*: for ſay they, if you pick them never ſo clean away, in few Months time you ſhall have as many more. And indeed it muſt be confeſt, that I met with ſeveral that were only ſtriated on one ſide, and rubble Stone on the other; and ſome of them but juſt begun to be a little lineated: However it be, I ſhall determine nothing yet, having imployed a careful and ingenious Perſon to watch the Increaſe and Lineations of theſe *Stones*, which when throughly underſtood, ſhall be faithfully communicated.

69. Beſide thoſe of *Glympton*, there are others at *Cornwell*, in the Park of the Right Worſhipful Sir *Thomas Pennyſton*, found in a Bank of Yellowiſh Clay, of a much different Form, and tranſverſly ſtriated, as in *Tab.* 4. *Fig.* 7. which though indeed for the moſt part are hard Stones, yet I was ſhewed ſeveral by the Ingenious *Owner* of the place, that were nothing but Clay, not differing at all from that in the Bed wherein they lie, and out of which they ſeem to be formed, but in *Figure* only; which is alſo different from all the *bivalvular Conchæ* that I find in Books, or have ſeen in Collections of that ſort of Shell-fiſh.

70. And ſo is the Figure of the *Conchites* found in *Hornton* Quarry, near approaching to an Oval, and ſcarce ſtriated at all: which inclines me at leaſt to doubt, if not certainly to conclude, that theſe *Cockle-like Stones* were never heretofore any real *Cockle-Shells*, thus tranſmuted by the penetrating Force of Petrifying Juices, but that moſt of them (as the ingenious Mr. *Liſter*[z] thinks) ever were as they now are, *Lapides ſui generis*, differing not only from one another, but many of them from any thing in Nature beſide, that the freſh or ſalt Water can any where afford us. But before I engage in this great Controverſy,

[z] *Philoſoph. Tranſact. numb.* 76.

let

let us firſt conſider a few more of theſe *Stones* reſembling *Shell-fiſh.*

71. And firſt, the above-mention'd *Conchites* found in *Hornton* Quarry, and repreſented in *Tab.* 4. *Fig.* 8. which is not a ſolid *Stone* within (as all the *Cockle-Stones* hitherto deſcribed have been) but hollow, and filled with *Spar*; ſometimes ſhot into irregular Figures, but for the moſt part forked, as in *Fig.* 9. the *Baſis*, or place where the Branches of the Fork are conjoyned, being rooted (in all that I have yet ſeen) at the *Commiſſure* or Hinge of the *Valves*, and the Branches extending themſelves in the broader parts of the *Conchites*; of which Operation of Nature I can give no other account, but that it was firſt obſerved by the Reverend Mr. *Clark*, Rector of *Dreyton* near *Banbury*, from whom, beſide other Favours, I received many of them.

72. After the *bivalvular Cockles*, found always with their *Valves* cloſed together, come we next to conſider the other *Bivalves* found never ſo, but their *Valves* always apart. And ſuch are the Stones reſembling *Eſcallops*, and ſome other ſtriated *Conchylia*: whereof that repreſented *Fig.* 10. is the moſt curious in its kind I ever yet ſaw, found in *Heddington* Quarries by Mr. *Richard Stapley*, an ingenious young Man, and learned in theſe Matters, to whom I am beholden, not only for this, but for ſome other choice *Stones* hereafter to be mention'd. Which amongſt all the *Pectines* or *Eſcallop-ſhells* I could find in the *Ichthyographers*, beſt reſembles the *Pecten aſper* of *Aldrovandus*[a]. Of Colour it is Yellowiſh, eared on both ſides, the Lineations from the *Commiſſure* to the *Rim* of the Stone very prominent, and yet having ſome other *tranſverſe* Lines (not bending to, but from the *Commiſſure*) ſtanding upon them, and not paſſing through the deep Furrows, ſo as to joyn with each other,

73. As the *tranſverſe* Lines do in the next following *Pectinites*, *Fig.* 11. where they are both of equal Depth, and very ſmall, thick and fine; the *tranſverſe* Lines all of them bent to the *Commiſſure*, but the other *ſtriæ* not meeting together in it, as in the former and following *Eſcallops*: This Stone is of a light reddiſh Colour, eared on both ſides, and found in the Quarries in the Pariſh of *Heddington.*

[a] *De Teſtaceis, lib.* 3. *cap.* 69.

74. And

74. And ſo was the next *Stone*, in Form of a *Pectunculus*, or little *Eſcallop*, *Fig.* 12. of a Whitiſh Yellow Colour, the *Striæ* large and broad, but the *tranſverſe* Lines ſmall, eared like the former on both ſides: Which alſo argues, that this Stone was never heretofore the Shell of a Fiſh, and thus caſt into Stone by an *Animal* Mould. For the *Pectunculi*, ſays *Rondeletius*[b], are a diſtinct *Species* from the *Pectines* or larger *Eſcallops*, and never have Ears but on one ſide, which indifferently are either on the right or left; except that we ſhall ſay, that this was once the Shell of a young *Pecten*, not yet come to its full Growth.

75. To this alſo may be referr'd *another* of the ſame Texture, only ſomewhat bigger, and wanting the *Ears* of a *Pectunculites*, or little *Eſcallop-ſtone*, *Fig.* 13. which becauſe it ſhews no ſigns of its *Ears* being broken off, I ſuppoſe may either repreſent the *Chama ſtriata Pectiniformis* of *Aldrovandus*[c], or elſe the *Pectunculus* of *Bellonius*, which (as quoted by the *Zo-ographer Geſner*[d]) he not only ſays has no Ears, but has exhibited it in Sculpture.

76. And ſo perhaps may the next *Stone*, *Fig.* 14. except we ſhall rather make it the firſt of the *Conchites ſtriati*, or ſtreaked *Cockle-ſtones*, which indeed I cannot chooſe but aſſent to, becauſe of its bearing too much on one ſide, which I find the *Pectinites* or *Eſcallop-ſtones* do not: and becauſe it cannot be a *Tellinites*, which Shell-Fiſh (if at all) is never ſtreaked that way. Let it therefore paſs only for a ſtreaked *Cockle-ſtone*, which are plentifully found, not only at *Heddington*, and about *Shotover*, but in the Quarries near *Stunsfield*, *North-Leigh*, and *Little-Milton*; and are placed here, becauſe found like the *Eſcallop-ſtones*, always with their Shells apart.

77. Whereof there are ſome larger, and as it were heaped upon one another, as in *Tab.* 4. *Fig.* 15. and others ſingle, as in *Fig.* 17. The real *Shell-fiſh* of which kind, called *Conchylia ſtriata*, though thus lineated without, are always, ſays *Aldrovandus*[e], plain and ſmooth within, contrary to what we find in theſe *Conchites ſtriati*, as is ſhewn by *Fig.* 16. which ſhews the in-ſide of one of thoſe Stones, not only lineated from the *Commiſſure* to the *Rim*, but adorned alſo with four or five *tranſverſe Fillets*, not made of *one*, but ſeveral conjoyned *Lines*, which ſeems alſo to conclude it

[b] *De Teſtaceis, lib.* 1. *cap.* 16. [c] *De Teſtaceis, lib.* 3. *cap.* 69. [d] *De Aquatil. lib.* 4. *p.* 813. [e] *De Teſtaceis, lib.* 3. *cap.* 44.

to be *Lapis ſui generis*, and not to have been moulded by a ſtriated *Cockle-ſhell*.

78. Beſide *Cockle* and *Eſcallop-ſtones*, there are others that ſeem to be of the *Oyſter* Kind, found plentifully in the Gravel-pits without St. *Clements*, in *Cowley-Common*, and in a *Wood* near *Wood-Eaton*: amongſt them there are ſome of an *oblong Figure*, very thick, and of a Bluiſh Colour, ſuch as that depicted *Fig.* 18. which I gueſs may be the ſame with the petrified *Concha oblonga craſſa*, mentioned by Dr. *Merret* [f], found in *Worceſter-ſhire*, and there called *Crow-ſtones*, *Crow-cups*, or *Egg-ſtones*; or elſe the more protuberant part of the *Mytulus niger* of *Aldrovandus* [g], or the *Mytulus* of *Rondeletius* [h].

79. But others are again of the true *Oyſter-ſhape*, called *Oſtracites*, or λιθόστρεον, repreſented *Fig.* 19. ſome whereof are *Blue*, and others *Reddiſh*, of the Colour of the Gravel out of which they are taken: Theſe are generally greater, thicker and weightier than the true *Oyſter-ſhell*, yet like them ſeem to be reſolved, according to the Opinion of *Steno* [i], into many *little Shells*, the innermoſt being always the *greateſt*, and the outermoſt the *leaſt*: Upon which very account I could eaſily have aſſented, that theſe, and the former, might once indeed have been *Shell-fiſh*; but that we only find (juſt as in the *Eſcallops*) the *protuberant* parts of the *Shells*, and never any of the *flat ones*; which had they been once *Fiſhes*, we have little reaſon to think, could have been thus abſent from them.

80. We find alſo in *Oxford-ſhire* a ſort of *Mituloides*, or *Muſcle-ſtones*, of an odd kind of Figure, and not eaſie perhaps to be parallel'd, though the *Teſtaceous Kingdom* be of large extent: They are not hollow, but within a *Terra lapidoſa* of a Yellowiſh Colour, and covered without with a White ſhining kind of *Armature*, with *oblong Lineations* agreeable to the Figure of the *Stone*, as in *Tab.* 5. *Fig.* 1. found in digging a Well in the Pariſh of *Cleydon*. To which we may add another ſort remarkably ſmall, found in *Heddington* Quarries, *Fig.* 2. which finiſh my Diſcourſe concerning ſuch *Stones* as reſemble the ὀστρακόδερμα, or *Teſtaceous Shell-fiſh*. Whence I proceed

81. To *Stones* repreſenting the μαλακόδερμα, or the *Shell-fiſh* of the ſofter *cruſtaceous kind*, ſuch as that *Tab.* 5. *Fig.* 3. in Subſtance and Hardneſs much like a *Pebble*, and of Co-

[f] *Pinax rerum Natur. Brit. p.* 216. [g] *De Teſtaceis, lib.* 3. *cap.* 71. [h] *De Teſtaceis, lib.* 1. *cap.* 46. [i] *In Prodromi verſ. Angl. p.* 75, 76.

lour

part of the *Stones*. They tell us alſo a Story of its being engendered from the *Salivation* and *Slime* of *Snakes*, and caſt into the Air by the Force of their *Sibilations*, where if taken, has Effects as wonderful as its Generation, and therefore of great Eſteem amongſt the *French Druids*. But I care not to ſpend my time in *Romance*, and therefore proceed,

84. To another *Echinites*, reſembling the inner Shell of the *Echinus Ovarius* or *Eſculentus*, ſo called from a ſort of *quinquepartite* or *ſtellated Eggs*, that this kind of *Echinus* has within it good to eat. Their outermoſt Coat is full of *ſharp Prickles*, upon which account they are ſometimes called *Chaſtaignes de Mer*, or *Sea Cheſnuts*, becauſe of their likeneſs to rough Prickles that encompaſs Cheſnuts whilſt they are on the Tree; for which very reaſon they are alſo called *Heriſſons de Mer*, *Sea Hedg-hogs*, and *Cardui Marini*, *Sea-Thiſtles*: which rough Coat of theirs, when the Fiſh is dead, coming off from them, they then diſcover their *inward Shell* of that *curious Workmanſhip*, that is lively repreſented by our *Stone*, *Fig.* 5. made up of ſo many *Compartments* and *Eminencies*, and ſo regularly diſpoſed, that, ſays *Monſieur de Rochefort* [o], (who calls them alſo *Pommes de Mer*, or *Sea Apples*) the moſt ingenious *Embroiderer* would be much troubled to imitate them. This *Echinites Ovarius*, was found in the Pariſh of *Teynton*, and ſent me by my Worthy Friend Mr. *Robert Veyſey*, to whom alſo I am beholding for many other matters mentioned in this *Eſſay*.

85. From *Teynton* alſo was ſent me another of this kind, but much ſmaller, not exceeding the *Rouncival Pea*, or *French Halſlet* in Bigneſs; and yet with Lines of *Compartment*, and other *Eminencies* as large as the former, but much fewer in number: to which, whether there be any *Animal* in Nature whoſe *Shell* will exactly, or for the moſt part correſpond, I much queſtion; wherefore that it may be examined both at home and abroad, I have cauſed it to be engraven, *Fig.* 6.

86. To which add a *fourth* ſort with its *Prickles* ſtill on, found plentifully in the Quarries near *Shotover-hill*, very like to the *fifth* ſort of *Echinus* of *Ariſtotle*, as depicted by *Rondeletius* [p], whoſe *inward Shell* it ſeems is very ſmall, but its *Prickles* long and ſtubborn, found always in the

[o] *Hiſtory of the Iſles* Antilles, *or* Caribby *Iſlands*, *chap.* 19. *art.* 13. [p] *De Piſcibus*, *lib.* 18. *cap.* 33.

deepeſt

binus[x], *Cornua Ammonis pertuſa*: And all three adorned with a ſhining Braſen *Armature*, in Luſtre equaling that *Metal* it ſelf, yet of which in Subſtance it has nothing leſs, though *Agricola* has affirmed it to be *Naturæ rudimentum id Metallum facere diſcentis.*

89. *Boetius de Boot*, in his Book *de Lapidibus & Gemmis*[y], thinks the *Stone* it ſelf naturally of a *Ferrugineous* Colour, which lying in an Earth ſated with an *Aluminous* Juice, is changed thereby into this *Braſen* Colour. To which *de Laet*[z] in his Supplement, adds, *Atramentum ſutorium*; both which, he ſays, joyned, give that Colour to *Iron*. For my part, I rather think it may be performed by *Nature*, much after the ſame manner they Gild *Money* at our *Engliſh Baths*; if ſo, there will be requiſite ſomething *urinous*, which they always add *there* to ſuperinduce ſuch a Colour, whereof more at large when I come into *Sommerſet-ſhire.*

90. The ſecond place eminent for Production of theſe *Stones*, is the Pariſh of *Cleydon*, where they find them of many more *turns* than thoſe at *Oxford*, though not much bigger; without *Armature*, of a *Yellowiſh* Colour (like the *Aſteriæ* before-mention'd, found at the ſame *place*) and differently *ſtriated*, as in *Fig.* 11. in which the *Striæ*, from the innermoſt part of the *Stone*, are all ſingle, but many of them divided before they reach the *Rim* of it, where they are terminated with a Back much more *protuberant* than the reſt of the *Stone*, but alike *Striated.*

91. Near *Thame*, in the Fields Eaſtward from the *Church*, they ſometimes meet alſo with the *Cornu Ammonis*, *ſtriated* ſingly like the former, near the inner part of the *Stone*, and preſently dividing, but without *Termination* either at any *Ridge*, or other *Protuberancies* in the Back; the Diviſion being continued to the other ſide of the *Stone*, where 'tis made again into one common *Lineation*, as in *Fig.* 12. Of which ſort I had ſome *Arches* or parts ſent me alſo from *Chiſlehampton*, by the Right Worſhipful Sir *John D'Oyly* Baronet, in whom flouriſh all the *Virtues* of that Ancient *Houſe*. But theſe (not like the former) a hard *Stone*, but ſome of them a kind of *Terra lapidoſa*, or hardened Yellow *Clay*, one Degree perhaps above that of the Bed wherein they lay; which (beſide Sir *Thomas Pennyſton*'s Clay-Cockles) ſeem to overthrow *Steno*'s[a] firſt Conjecture concerning theſe matters: *That they are always found in the*

[x] Joan. Bauhinus *de Lapidibus variis in fine Hiſt. admirabilis fontis* Bollenſis. [y] *Cap.* 246. [z] *De Lap. & Gemmis, cap.* 22. [a] *In tractatu de Carnis Carchariæ diſſecto capite, p.* 118.

ſame

ſame place, of the ſame Conſiſtence; and that there are no ſigns amongſt them of ſooner or later Production.

92. And ſo do the *Ophiomorphits*, found in a Bluiſh Clay in the Pariſh of *Great-Rolwright*, Eaſtward from the *Church*, whereof ſome are ſo ſoft, that 'tis eaſy to preſs them aſunder with ones Fingers; and others a hard *Bluiſh Stone*. But though they agree with the former in the manner of *Production*, they differ as much in the manner of their *Lineations*, for whereas their *Striæ* were divided near the Rim, ſome of the *Lineations* of theſe come together there, and are united in pretty large *protuberant Knobs* on each ſide the Back of the *Stone*, which in theſe being broad and ſomewhat riſing, is croſſed by other *arched* Lines, that intercede the *Eminencies*, as in *Fig.* 13.

93. Other *Ophiomorphits* there are, that have only ſtraight ſingle *Ribs*, which terminate alſo in ſtraight *Ridges* that run along on each ſide the Back of the *Stone*; between which two *Ridges*, there riſes a *third* more prominent one, juſt in place as it were of the *Spina dorſalis*, as in *Tab.* 5. *Fig.* 14. which though not wreathed, but plain like the other lower *Ridges* on each hand it, I take to be the *Cornu Ammonis criſtatum* of *Johannes Bauhinus* [b]. One of theſe, of about four Inches over, and made up of as many *turns*, was given me by the Reverend and Learned Dr. *John Wallis*; and there is another amongſt the Κειμήλια of the *Medicine School*, of above eight Inches *Diameter*, taken up as they ſay ſomewhere about *Corpus Chriſti College*.

94. There are alſo *Ophiomorphits* found ſometimes about *Adderbury*, about two Miles from *Banbury*, but ſo very ſeldom, that though I were there often, I could meet with none of them; ſo that I cannot inform the *Reader* whether they are of any peculiar kind, different from what have been already deſcrib'd, or no: However, that the Town has not its Name from theſe Stones (as Mr. *Ray* thinks) I dare confidently avouch, *Adderbury* being only the vulgar Name: for in the *Court-Rolls* of *New-College*, (and other Inſtruments) to which the *Lordſhip* of the *Town* belongs, it is written *Eabberbury*, perhaps from St. *Ebba*, the tutelar Saint of the *Church*.

95. The biggeſt of the kind, that I have yet met with, was at *Clifton* near *Dorcheſter*, but found, as I was told, at *Sandford* near *Oxford*, about eleven Inches over, and ſeventeen Pounds in Weight; having ſingle *Ribs* only, without

[b] Johannes Bauhinus *de Lapidibus variis in fine Hiſt. admirabilis*, Bollenſis, *p.* 20.

Knobs

Knobs or Ridges at the Back, which is plain and even, as in *Fig.* 15. which though little more than half ſo big as that mention'd by Dr. *Merret* of 21 Inches *Diameter**, that he ſaw in the Garden of one Mr. *Rawdon*, yet I gueſs it muſt needs ſo extravagantly exceed the biggeſt *Nautilus* or *Porcellane-ſhell*, both in Latitude and Number of *turns*, that we muſt be forced to ſeek out another *Origin* for it.

96. Beſide, its being in-laid with a ſmall ſort of *Conchites*, ſo placed in its ſides, that they have *Segments* (if I may ſo call them) within the very Bulk or Body of the *Ophiomorphite*, ſeems flatly to deny its Original from the *Nautilus*, for had this fallen out by Compreſſion of their Shells together, their uniform Figures muſt needs have been ſpoiled, contrary to what appears as well in the *Stone* as its Draught. Which brings me to conſider the great *Queſtion* now ſo much controverted in the World.

> *Whether the Stones we find in the Forms of* Shell-fiſh, *be* Lapides ſui generis, *naturally produced by ſome extraordinary* plaſtic virtue, *latent in the Earth or Quarries where they are found? Or, whether they rather owe their Form and Figuration to the* Shells *of the* Fiſhes *they repreſent, brought to the* places *where they are now found by a* Deluge, Earth-quake, *or ſome other ſuch means, and there being filled with* Mud, Clay, *and petrifying* Juices, *have in tract of time been turned into* Stones, *as we now find them, ſtill retaining the ſame Shape in the whole, with the ſame* Lineations, Sutures, Eminencies, Cavities, Orifices, Points, *that they had whilſt they were* Shells?

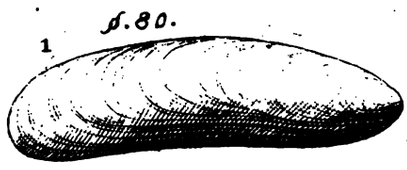
97. In the handling whereof, though I intend not any peremptory *Deciſion*, but a *friendly Debate*; yet having, according to the Wiſhes and Advice of thoſe Eminent *Virtuoſi*, Mr. *Hook* and Mr. *Ray*, made ſome conſiderable Collections of theſe kind of *things*, and obſerved many Particulars and Circumſtances concerning them: Upon mature Deliberation, I muſt confeſs I am inclined rather to the Opinion of Mr. *Liſter*, that they are *Lapides ſui generis*; than to theirs, *That they are thus formed in an Animal Mould.*

* *Pinax rerum Naturalium, p.* 215. There is another about that Bigneſs in the Repoſitory of the *Royal Society*, given by the Right Honourable *Henry* Earl of *Norwich.*

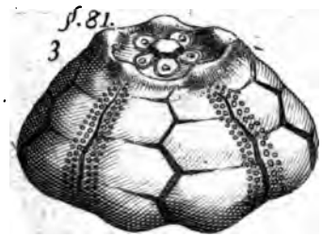
The

TAB. V

Chap. V.


1 f. 80.

2 f. 80.


f. 81.
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f. 82.
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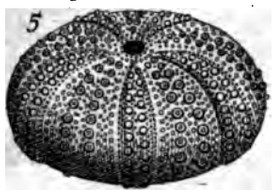
f. 84.
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6 f. 85.

f. 86
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8 f. 88.

f. 88.
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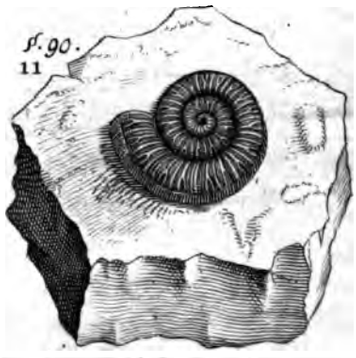
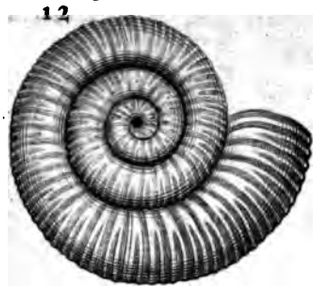
10 f. 88.


f. 90.
11


f. 91.
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f. 92.
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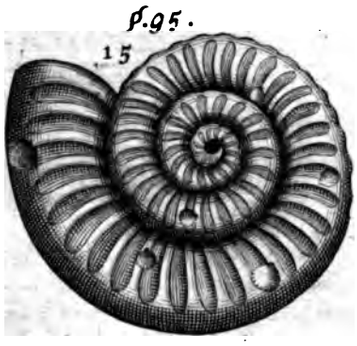
f. 93.


f. 95.
15

To the Worsp.ll THOMAS STONOR
of WALLINGTON Park & STONOR Esq;
This first Table
of FORMED STONES chiefly resembling SHELL
FISH of the Crustaceous kind, whereof the 3rd & 4th
sort were found in his owne grounds, is
humbly presented by
R. P. L. L. D.

The *latter Opinion* appearing at preſent to be preſſed with far more, and more inſuperable Difficulties than the *former*.

98. For they that hold *theſe Stones* were thus formed in the *Shells* of *Fiſhes*, muſt ſuppoſe either with *Steno*[c], that they were brought hither by the *Deluge* in the Days of *Noah*; or by ſome other more particular, and perhaps *National* Flood, ſuch as the *Ogygian*, or *Deucalionian* in *Greece*, than either of which there is nothing more improbable.

99. Firſt, not by the Flood in the Days of *Noah*, becauſe that (and for very good reaſons too) ſeems not to have been *univerſal*, and at moſt to have covered only the *Continent* of *Aſia*[d], and not to have extended it ſelf to this then uninhabited *Weſtern* part of the World. But ſuppoſe it were *univerſal*, yet it proceeded from *Rain*, which (as Mr. *Ray* well obſerves) would more likely have carried *Shells* down into the *Sea*, than brought any upwards from it. And if it be further urged, *That the Fountains of the great Deep were broken up*[e], and that the *Deluge* proceeded partly from a *Breaking forth* and Over-flowing of the *Sea*, which conſequently might bring in the *Shells*: It may be anſwered, that the Over-flowing, either *gradually* increaſed upon the Earth, or was *violent*: if *gradually*, as it is moſt likely, (for God cauſed not any *Wind* to paſs over the *Earth* till the *Waters* began to aſſwage[f]; and beſides, the *Waters* that deſcended in *Rain*, in all probability at firſt ran down to the Sea, and gave ſome Check to its *Floods*) why ſhould we think that any *Shell-fiſh*, eſpecially of the *Teſtaceous* kind, whereof there are ſome that always ſtick to *Rocks*, and others that have no Locomotion, as *Oyſters*, *Muſcles*, &c. but what is given them by the *Waters* Violence, ſhould leave their Beds in the Sea at all, and be carried aloft to the Tops of *Mountains*? And if *violent*, then ſuch a Flood would have indifferently ſcattered all ſorts of *Shells* over the whole Face of the *Earth*, eſpecially in all *Valleys*; whereas we find the *Stones* that reſemble them, many times, at the Tops of *Hills*, and but in few *Valleys*; and thoſe not ſcattered neither indifferently one amongſt another, but for the moſt part thoſe of a *kind* together; and of the ſame *kind* too, thoſe of different *Lineations* together. Thus at *Cornwell* and *Hornton* we find only *Conchites* or *Cockle-Stones*, and thoſe *ſtriated* (if at all) from ſide to ſide *tranſverſly*, as in *Tab.* 4. *Fig.* 7, 8. And ſo at *Glympton*

[c] *In Prodromo.* [d] *Vide* Stillingfleti *Origines Sacras*, *lib.* 3. *cap* 4. [e] *Gen. c.* 7. *ver.* 11. [f] *Gen. cap.* 8. *ver.* 1.

only *Cockle-ſtones*, but lineated the contrary way from the *Commiſſure* to the *Rim*, as in *Fig.* 6. of the ſame *Tab.* On *Cowley-Common* we find nothing but *Oſtracites*, ſuch as in *Tab.* 4. *Fig.* 19. And in the Gravel-pits of St. *Clements* a Mixture of ſuch *Oyſter-ſtones*, and (to which I believe it will be hard to adapt a *Shell-fiſh*) the Stone *Belemnites*. The *Nephiri* or *Lapis Megaricus* at *Langley*, is a Bed of nothing but *Cockles* as ſmall as Peaſe; and that at *Charlton* the ſame, only the *Cockles* are ſomewhat bigger. So that theſe Beds of *Cockle-ſtones* (if they muſt needs have been *Shell-fiſh*) ſeem rather to have been their Breeding places, where they had Abode for ſome conſiderable time (eſpecially where we find them of ſeveral Sizes) than brought hither in the *Flood* in the time of *Noah*, which remained on the Earth but *forty natural Days*, too ſmall a time for ſo many *Shell-fiſh*, ſo diſperſed, as they muſt be preſumed to be by ſo violent a Motion, to get together and ſequeſter themſelves from all other Company, and ſet them down, *each ſort*, in a convenient Station.

100. And ſecondly, that they ſhould be brought by any other *Flood* is altogether as unlikely, ſince we have no other *Floods* deliver'd down to us, but the *Ogygian* and *Deucalionian*, which were reſtrained within *Greece*. But ſuppoſe all that can be deſired by the *adverſe* Party, that there was ſometime or other a *National Flood* here in *England*, that did for ſome Hundreds of Years cover the face of the Land, of which there is no Record deliver'd to Poſterity; yet that it ſhould cover the higheſt Hills, or if it did, that it ſhould force the *Shells* to their Tops, which are weighty and rather affect the loweſt places, is a conceſſion as hard to be granted, as that the Mountains (where ſuch Stones as reſemble them are now found) were heretofore low places and ſince raiſed by *Earth-quakes*: a thing by no means to be believed of our *Northern* Parts, where the *Earth-quakes* we have at any time are ſo inconſiderable, that they ſcarce ſometimes are perceived, much leſs affrighten us; unleſs we ſhall groundleſly grant, that in the infancy of the *World* the *Earth* ſuffered more concuſſions, and conſequently more mutations in its *Superficies*, than it has done ever ſince the Records of time.

101. Yet granting too that in the *Primitive Times* there were ſuch ſtrange *Earth-quakes*, or elſe that there was ſome time or other ſuch a *Flood*, that did cover our *higheſt Hills*, and which might be ſo *violent*, as to bring *Shells* out of the

great

great Deep, and place them on the *Tops* of *Mountains*; yet that our *formed Stones*, at leaſt that moſt of them, were not faſhion'd in ſuch *Moulds*, but are *Lapides ſui generis*, may be ſtrongly ſuſpected from the following *Reaſons*.

102. Firſt, becauſe I have found ſome of them that reſemble *Shell-fiſh* that always ſtick to *Rocks*, and cannot well be preſumed to have come away with the greateſt *Flood*, unleſs ſo *Violent* as to have brought the *Rocks* too: and ſuch is that *engraven Tab.* 5. *Fig.* 7. which whether it beſt repreſent the *Echinus quintus* of *Ariſtotle*, or ſome ſort of *Lepas* or *Patella*, equally makes for my Purpoſe, neither of them leaving the *Rock* they ſtick to, being *Univalves*, and having the *Rock* it ſelf inſtead of the *Other*.

103. Secondly, becauſe there are many *Shells*, and other *Teſtaceous* and *Bony Subſtances* belonging to *Fiſh*, that muſt alſo have been left behind upon the *Ebb* of ſuch a *Flood* as well as the *reſt*, of which we have no Stones that reſemble them at all. Such are Bones of *Whales*, *Sea-Horſes*, and the Bones of all the *Squammeous* Kind; the great *Shells* of the *Buccina*, *Murices*, *Conchæ Veneris*, and *Solenes*; the Sword of the *Xiphias* or *Sword-fiſh*, and almoſt all the *Cruſtaceous* Kind, ſuch as *Crabs*, *Congers*, *Lobſters*, &c. which laſt having *Locomotion*, I ſhould much rather expected to have found *petrified* on the Tops of Mountains, than any of the *Teſtaceous* Kind, and yet of *theſe* we meet the feweſt of any.

104. Thirdly, becauſe there are many Stones formed indeed in the manner of *Bivalves*, &c. which yet reſemble no Species of *Shell-fiſh* now to be found, whereof ſeveral are above-mentioned. And this is ingeniouſly confeſſed by *Fabius Columna*[h], though one of the Adverſaries of this my preſent Opinion: *Addemus* (ſays he) Pectunculorum *imagines*, *quarum quaſdam non niſi* Lapideas *vidimus*, of which that he calls his *Mytulo-pectunculus rarior Berberoides*, is one. If it be ſaid, that poſſibly theſe Species may be now loſt, I ſhall leave it to the *Reader* to judge, whether it be likely that *Providence*, which took ſo much care to ſecure the *Works* of the *Creation* in *Noah's Flood*, ſhould either then, or ſince, have been ſo unmindful of ſome *Shell-Fiſh* (and of no other *Animals*) as to ſuffer any one *Species* to be loſt.

"105. Fourthly, becauſe even thoſe *Formed Stones*, "which altogether agree with the Shells in Figure, could

[h] *Aquatil. & Terreſtr. obſervat. cap.* 21.

" by no means be caſt in a Shell as a Mould; for then the " Shell in which they were form'd ſhould be ribb'd and *ſtri-* " *ated* within, as well as without; which few of them are, " eſpecially thoſe of the *Cockle-kind*, whereof there are " more found than of any ſort whatever.

106. Fifthly, becauſe there are ſeveral *Formed Stones*; that no Body pretends to know whether to refer, as repreſenting neither *Animals* or *Plants*, either in the whole or parts; ſuch as the *Selenites*, *Aſtroites*, and *Belemnites*; which if thus *tacitly* confeſt to be *Lapides ſui generis*, and formed by ſome latent *plaſtick Power* of the *Earth*, Why might it not as well produce all the *reſt*? eſpecially ſince ſcarce any of them are reduced to Animals or Plants without great Inconvenience. Thus they that think the *Aſteriæ* to be nothing but the *Spinæ dorſales*, or Tail-bones of *Fiſh* petrified (they conſiſting, 'tis true, for the moſt part of pieces ſticking together like *Vertebræ*) neither can tell us of what ſort of *Fiſh*, nor give us any reaſonable account why the Tail-bones of ſuch a particular *Fiſh* (for the *Aſteriæ* of all places are *ſtriated* alike, and ſeem to have had Original from the ſame Species) ſhould be thus *petrified*, and not the Tail-bones as well of ſome others?

107. And they that fancy the ſeveral Species of *Brontiæ* to be nothing elſe but the *petrified Shells* of *Echini Spatagi*, or *Briſſi*, would be hard put to it to reconcile the different Conditions of that *Shell-Fiſh* and theſe Stones: for firſt, the *Fiſh* it ſelf is but rarely found, πολύγνοι ἢ ἀσπάνιοι, ſays *Ariſtotle*[h], which is alſo confirmed by *Rondeletius*[i], whereas the Stones are plentiful enough. Again, the *Echinus Spatagus* has but few Briſtles, *aculeis parvis & raris ſeptus*, ſays the ſame *Rondeletius*[k], and thoſe, if we may believe the Cuts of Authors, but diſorderly ſet; which how agreeable to our *Brontiæ*, *Tab.* 2. and 3. let any Man judge. The firſt of them indeed in the groſs Figure, is like the *Heriſſons Spatagi* of *Boccone*[l] which he ſaw in *Holland*, flat like a *ſmall Cake*; but he tells us nothing of ſuch numberleſs ſmall *Annulets* as there are in our Stones, which if heretofore the places of ſo many *Briſtles*, but ill agree with the Deſcription of *Rondeletius*. Beſide theſe of *Oxford-ſhire*, there are ſeveral other ſorts that I have ſeen in other Counties (hereafter to be repreſented, in caſe this *Eſſay* prove acceptable) which I could heartily wiſh the Ingenious *Steno*

[h] *Hiſt. Animalium, lib.* 4. *cap.* 5. [i] *De Piſcibus, lib.* 18. *cap.* 31. [k] *Loco citato.* [l] *Recherches & Obſervations Naturelles, Lettre* 26.

and

and *Boccone*, or any other *Curioſo*'s, for the better clearing of this great *Controverſy*, would undertake to parallel (and ſo of other *Formed Stones*) with *Shells* in all parts anſwerable.

108. They that think the *Cornua Ammonis*, or *Ophiomorphites*, to have been formerly nothing but *Porcellane-ſhells*, ſeem alſo to be preſſed with the like *Difficulties*: for either there are ſeveral *ſorts* of them not known to (I am ſure not deſcribed by) Authors, or elſe our *Stones* muſt have their *Formation* from a different *Mould* than their *Shells*. For firſt, the *Shells* ſeem to be extravagantly broad at the Mouth, as deſcribed by *Rondeletius* and *Johnſton*, and not to have more than two other ſmall *turns* at moſt; whereas the *turns* of the *Ophiomorphit*'s are proportionable to one another, and in Number many times four or five, and ſometimes ſix, if we may believe *Aldrovandus*[m]: Of which Difference *Chioccus*[n] ſeems to have been ſo well aware in his Deſcription of the latter part of the *Muſæum Calceolarium*, that he makes the *Cornu Ammonis* and *Nautilus Lapideus* to be quite different things, and deſcribes the *latter* very broad at the greater End, and with but one *turn*, ſomewhat like indeed to the *Porcellane-Shell*.

109. Beſide, ſo far are ſome of our *Engliſh Ophiomorphit*'s from ever having been formed by the *Shell* of the *Nautilus*, that at *Huntley-Nab* in the *North-riding* of *York-ſhire*, they are found always included in other great round *Stones*, not unlike, ſays Mr. *Cambden*[o] to Cannon-bullets. And at *Whitby*, ſays Mr. *Ray*[p], in Stones of a *lenticular Figure*, which if formerly they had been the *Shells* of *Nautili*, how they ſhould become thus included in *Stones* alſo of a *determinate Figure*, is a Difficulty more inſuperable than any of the former. Add hereunto that Mr. *Cambden*[q], and ſince him Dr. *Childrey*[r] plainly avouch, that the *Ophiomorphit*'s of *Cainſham*, have ſome of them *Heads*, and that in *this* they differ from thoſe of *York-ſhire*: *Vidimus enim lapidem hinc delatum ſerpentis in ſpiram revoluti effigie, cujus caput in circumferentia prominuit, extrema cauda centrum occupante*, are the very Words of Mr. *Cambden*. Which if I find true when I come to *Somerſet-ſhire*, will give *me*, and I doubt not, *others* Satisfaction beyond all Exception; for that the *Shells* of the

[m] *Muſæum Metallicum, lib. 4. cap. 1.* [n] *Muſæum Calceolarium, ſect. 3. p. 416.* [o] Cambden *in* York-ſhire. [p] *Topograph. Obſervat. p. 114.* [q] Cambden *in* Somerſet-ſhire. [r] *Britannia Baconica* in *Somerſet-ſhire.*

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Nautili have any ſuch matter, no Body yet has, nor will dare to pretend.

110. To which alſo add the *Greatneſs* of ſome of theſe *Stones*, whereof there are ſome it ſeems near two [f] Foot in *Diameter*, far exceeding, ſays Mr. *Ray* [t] the Bulk of any *Shell-fiſh* now living in our *Seas*. To which if it be ſaid that moſt *Petrifications* are made either by *Aggregation*, or by Intruſion or Protruſion of *Parts*, which always increaſe the Bulk of the *Subject*: It may be anſwered, that though ſuch *Augmentation* muſt be allowed indeed in many Caſes, yet ſure it did not ſo fall out in the *Petrification* of the *Nephiri* or *Cockle-ſtone* at *Langley*, where the *Stones* are much leſs than moſt Natural *Shells*.

111. Sixthly, becauſe that even thoſe *Stones*, which ſo exactly repreſent ſome ſort of *Shell-fiſh*, as *Oyſters*, *Cockles*, &c. that there can be no Exception upon the account of *Figure*, but they might formerly have been Shells indeed; at ſome places are found with only *one Shell*, and not the *other*. Thus in *Cowley-Common* we meet only with the *gibbous*, and not the *flat* Shell of the petrified *Oyſter*, and ſo of the *Eſcallop-ſtones* in the Quarries near *Shotover*; which had they been once the Shells of *Oyſters* and *Eſcallops*, in all Probability had ſcarce been thus parted.

112. Seventhly, becauſe I can by no means ſatisfie my ſelf, how it ſhould come to paſs, that in caſe theſe Stones had once been moulded in Shells, ſome of the ſame kind ſhould be found in Beds, as the *Conchites* at *Langley*, *Charleton*, *Adderbury*; and *others*, ſcattered as at *Glympton* and *Teynton*; and ſo the *Oſtracites* at *Shotover* and *Cowley*. Nor how it ſhould fall out, that ſome of theſe *Bivalvulars* ſhould moſt times be found with their Shells apart, as the *Oſtracites* and *Pectines*: and *others* always cloſed together, as the *Conchites* in all places I have yet ſeen.

113. Eighthly, becauſe many of theſe *Formed Stones* ſeem now to be in *fieri*, as the *Selenites* at *Shotover* and *Hampton-Gay*, the *Conchites* at *Glympton* and *Cornwell*, where within one of the *Clay-cockles* above-mentioned, I found a little one of *Stone*, not exceeding a *Vetch* in bigneſs; which had they been formed heretofore by *Cockle-ſhells*, in all likelihood would both either have been Stone or Clay. Nor can it be ſaid they were brought hither by different *Floods*, becauſe they were both found in the ſame *Bed*, one included in the other. Which is all I have to urge for this part of the

[f] *Dr.* Merret's *Pinax rerum natural. pag.* 215. [t] *Topograph. Obſervations, p.* 127.

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Queſtion, but that in the Biſhoprick of *Hildeſheim*, between *Alfeld* and *Eimbec*, there is a ſort of *Ochre* that forms it ſelf in this manner in to the *Shape* of *Oyſters* [u]: And that Mr. *Ray* was informed by a Perſon of good credit, of a *Stone* of this Nature reſembling a *Cockle-ſhell*, found in the Belly of a *Beef*, where in all likelihood it bred, and ſhot into that *Figure*: Which if true, ſays he, there can be no reaſon to doubt, but that thoſe in the Quarries and other places are ſo generated.

114. "Laſtly, becauſe there are ſeveral ſorts of *Formed* "*Stones*, which repreſent things of ſo tender a Texture, "and of ſo ſhort a Duration, that it is very improbable, "(that I ſay not impoſſible) that things of that Nature "ſhould ever continue long enough to perform the Office "of a Mould to the Stones they repreſent, ſuch as *Muſh-* "*rooms*, *Honey-Combs*, *Cup-Moſs*, &c *.

115. But againſt this Opinion there are ſeveral conſiderable *Objections* brought by the Ingenious Mr. *Hook*, *Steno*, and *Boccone*, which I ſhall next faithfully propound to the beſt advantage, and then ſee whether they may not more eaſily be ſolved, than the *Arguments* on the other ſide perhaps are like to be.

116. Firſt, That amongſt thoſe *Stones*, there are ſome with the perfect *Shell*, in Figure, Colour and Subſtance, ſticking to their ſurface; eſpecially, ſays Mr. *Hook* [w], (diſcourſing of theſe matters) *thoſe* Serpentine *or* Helical Stones *were covered with, or retained the ſhining or Pearl-colour'd ſubſtance of the inſide of a* Shell, *which ſubſtance on ſome parts of them was exceeding thin, and might be eaſily rubb'd off; on other parts it was pretty thick, and retained a White Coat, or flaky Subſtance on the Top, juſt like the Outſides of ſuch* Shells; *ſome of them had very large Pieces of the* Shell, *very plainly ſticking on to them, which were eaſily broken or flaked off by degrees.* Add hereunto ſome Particulars mentioned by *Steno* [x]. 1. *That there was found a Pearl-bearing* Shell *in* Tuſcany, *a Pearl yet ſticking to the* Shell. 2. *A Piece of the great* Sea-nacre [Pinna Marina] *in which the Silk-like Subſtance within the* Shell *being conſumed, the Colour of that Subſtance did remain in the Earthy Matter which had filled the* Shell. 3. *That about the City of* Volaterra, *there are many Beds of Earth, not Stony, which do abound with true* Cockle-ſhells, *that have ſuffered no*

[u] *Lachmundi* Ὀρυκτογραφ. *ſect.* 1. *cap.* 4. * *Vid. Nat. Hiſt. of* Staff *Chap.* 5. §. 25. 27. 39. [w] *Micrograph. Obſerv.* 17. [x] *In Prodromo.*

change

Change at all, and yet they muſt needs have lain there above 3000 *Years; whence it is evident, that that part of* Tuſcany *was of old time covered with the Sea*: And why then might not as well all thoſe other places where theſe petrified *Shells* are found? 4. To which alſo let me add, that at ſome places here in *England*, particularly at *Cats-Grove* near *Reading*, a place ſufficiently remote from the *Sea* (of which more at large when I come into *Berk-ſhire*) they meet with a Bed of *Oyſter-ſhells* both flat and gibbous, about 12 or 14 Foot under Ground, not at all *petrified*, all of them opened, except ſome very few, that I ſuppoſe have caſually fallen together; which how they ſhould come there without a *Deluge*, ſeems a Difficulty to moſt Men not eaſily avoided.

117. To all which it may be anſwered, firſt in general with Mr. *Liſter*[y], that we will eaſily believe, that along the Shores of moſt Countries, ſuch as are particularly the Shores of the *Britiſh* and *Mediterranean Seas*, there may all manner of *Sea-ſhells* be found promiſcuouſly included in Rocks or Earth, and at good Diſtances from the Sea, where the Grounds are no higher than the *Volaterran-hillock*, which meeting with ſuitable *petrifying Juices*, may either be wholly *petrified*, or where the Juices are not compotent, be only *metamorphos'd* in part, ſome of the *Shelly* Subſtance ſtill remaining; or not changed at all, as in the Inſtances of *Steno*, and perhaps of Mr. *Hook*, for he tells us not where he found thoſe *ſemi-petrified Stones*.

118. But ſecondly, Suppoſe he found them in the higheſt and moſt In-land Counties, ſince he tells us not that he found them in any great plenty, we can eaſily alſo admit that ſome ſmall Quantities of *Shells*, thrown away after the Inhabitants had eaten the *Fiſh*, may even there be filled with Mud and petrifying Juices, and ſo turned either in the whole or part into *Stone*.

119. And thirdly, provided it be near a great *Town* or *City*, either now flouriſhing, or that did ſo heretofore, and hath formerly been the Seat of much *Action*; it may be allowed alſo that ſome Quantities of *Shells* may be found, either perfectly or but imperfectly *petrified*, or that have ſuffer'd no Change at all: which helps me to a *ſalvo* for my own Objection, taken from the Bed of true *Oyſter-ſhells* found near *Reading*, it having been a *Town* of very great *Action*, during the Invaſions of the *Danes*, who cutting a deep Trench croſs between the *Kennet* and *Thames*, and incloſing

[y] *Philoſoph. Tranſact. numb.* 76.

them-

would conclude that all others of the *Form* muſt needs be ſo, that are attended with much different, and indeed (in reſpect of having once been *Shells*) inexplicable Circumſtances.

122. Thirdly and laſtly, *That it ſeems quite contrary to the infinite* Prudence *of* Nature, *which is obſervable in all its Works and Productions, to deſign every* thing *to a determinate* End, *and for the attaining that* End, *makes uſe of ſuch ways as are* (*as far as the Knowledge of* Man *has yet been able to reach*) *altogether conſonant and agreeable to* Man's *Reaſon, and of no way or means that doth contradict, or is contrary to* human Ratiocination: *Whence it has been a general Obſervation and* Maxim, *that* Nature doth nothing in vain. *It ſeems, I ſay, contrary to that great Wiſdom of* Nature, *that theſe pretily ſhaped Bodies ſhould have all thoſe curious Figures and Contrivances* (*which many of them are adorned and contrived with*) *generated or wrought by a* plaſtick Virtue, *for no higher End than only to exhibit a* Form[d].

123. To which I anſwer, that Nature herein acts neither contrary to her own *Prudence, human Ratiocination*, or in *vain*, it being the Wiſdom and Goodneſs of the *Supreme Nature*, by the *School-men* called *Naturans*, that governs and directs the *Natura naturata* here below, to beautify the World with theſe Varieties; which I take to be the End of ſuch Productions as well as of moſt *Flowers*, ſuch as *Tulips*, *Anemones*, *&c.* of which we know as little Uſe as of *Formed Stones*. Nay, perhaps there may proportionably, Number for Number, be as many of *them* of *Medicinal* or other *Uſe*, ſuch as *Ceratites, Belemnites, Conchites, Lapis Judaicus, &c.* as there are of *Plants*: So that unleſs we may ſay alſo (which I gueſs no Body will) that theſe are produced contrary to the great Wiſdom of Nature, we muſt not of *Stones*.

124. And thus I have given the Grounds of my preſent *Opinion*, which has not been taken up out of *Humor* or *Contradiction*, with Intent only to affront other worthy Authors modeſt Conjectures, but rather friendly to *excite them*, or any *others*, to endeavour Collections of *Shell-fiſh*, and parts of other *Animals*, that may anſwer ſuch *Formed Stones* as are here already, or may hereafter be produced; Which when ever I find done, and the *Reaſons* alleged *ſolidly* anſwered, I ſhall be ready with Acknowledgment to

[d] *Mr.* Hook's *Micrographia, Obſerv.* 17.

re-

much different *one* from *that* which gives Form to our *Aſtroites* and *Aſteriæ*, whereof, though the latter have but five *Points*, and therefore making *Angles* where they are joined at the *Center* of 72 *Degrees*; yet the *Aſtroites* both in *mezzo Rilievo* and *Intagli*, as in *Tab.* 2. have *many* more. Perhaps there may be ſomething of an *Antimonial Salt* that may determine Bodies to this *Starry* Figure, as no Queſtion it does in the *Regulus*, and the *Caput mortuum* of the *Cinnabar* of *Antimony*. To ſuch a *Salt* may alſo be referred our *Brontiæ* or *Ombriæ*, and all the *Echinites*, *ſome* whereof are plainly, *all* in ſome meaſure *ſtellated* at the Top.

129. The *Belemnites* which are all *ſtriated* from a *Center*, yet in the whole affect a *Pyramidal* Form; ſeem to have ſomewhat alſo of an *Antimonial*, but a more prevalent Quantity of a *Nitrous Salt*.

130. The *Conchites*, *Pectinites*, and *Oſtracites*, whether tranſverſly *ſtriated*, or from the *Commiſſures* to the *Rim*, ſeem to own their Origin to *Urinous Salts*, which ſhoot likewiſe from a *Center* (as ſuppoſe from the Hinges of theſe *Stones*) but generally are moſt extended to one ſide, as may be ſeen in the branched Figure formed on the Surface of *Urine* by freezing, in Mr. *Hook*'s *Micrography*[g]; whoſe *Striæ* not obtaining much above the *Quadrant* of a *Circle*, whatever other Difference there may be, in this reſpect at leaſt is agreeable to our *Stones*.

131. To which add the *Ophiomorphit*'s, or *Cornua Ammonis*, moſt probably formed either by two *Salts* ſhooting different ways, which by thwarting one another make a *Helical* Figure, juſt as two oppoſite Winds or Waters make a *Turbo*; or elſe by ſome ſimple, yet unknown *Salt*, that affects ſuch a Figure: perhaps the Stems and Branchings bended in a moſt excellent and regular Order, like the Ribs of ſome of our *Ophiomorphit*'s, obſerved by Mr. *Hook* * in *Regulus Martis Stellatus*, might not a little conduce to the clearing this Matter.

132. How near I am to the Mark in theſe former Conjectures, I dare not too temerariouſly reſolve: But as to the Formation of the *Rhomboideal Selenites*, *Tab.* 2. *Fig.* 1. with a little more Confidence I ſhall venture to pronounce it, to come from a *Tartareous Salt* in the Earth; having obſerved in the Honourable Mr. *Boyle*'s way of preparing *Tartarized* Spirit of Wine[h], that the *Calx* of *Tartar* being

[g] *Ibid.* *Micrograph. obſerv.* 14. [h] *Eſſay* 1. Of the Unſucceſsfulneſs of Experiments.

ſated

ſated with the *Phlegmatick* part of the *Spirit*, and diſſolved by the Heat; ſet to cool, ſometimes ſhoots (I dare not ſay always) exactly into ſuch *Rhomboideal* Figures made up of *Plates*, and the whole *Rhomboids* ſometimes iſſuing out of one another, juſt as we find the *Selenites* often do.

133. More might have been added concerning ſome other *Formed Stones* hereafter to be mentioned; but I have now only time to hint my *Hypotheſis*, which I ſuppoſe may be ſufficiently done in the afore-going Inſtances; not intending to proſecute it further till I have had more Experience, which this my preſent Attempt ſerves to ſhew the World is yet but ſmall. And therefore I haſten on to the Reſidue of the *Formed Stones*, which according to my *Method* laid down in the Beginning of this *Chapter* (having done with all ſuch as relate to the *Waters*) are thoſe that reſemble any *Terreſtrial Bodies*; and amongſt them, firſt of ſuch as belong to the *Vegetable* Kingdom.

134. Whereof there are ſome that repreſent whole *Plants*, and ſuch is the *Fungites* or *Tuberoides*, found ſomewhere in the *Chiltern* about *Stoken-Church-Hill*, and engraven *Tab.* 6, *Fig.* 1. of a *Cinereous* Colour without, but a *Black-flint* within, and lively repreſenting one of the *Fungi lethales non eſculenti.*

135. *Others* there are that reſemble only the parts of *Plants*, and ſuch is that depicted *Tab.* 6. *Fig.* 2. like a *Bryony-root* broken off tranſverſly, and ſhewing the *Fibrillæ* from the *Center* to the *Circumference*, with the other *Striæ* deſcending down the *Sides*, and the *Annulary Diviſions*; and all *theſe* in a *Stone* ſo exactly of the Colour of a *Bryony-root*, that it would be hard to diſtinguiſh it, were it not for the *Weight.* This was found in the Quarry-pits of Rubble-ſtone near *Shotover* Hill.

136. And others there are again like the *Fruits* of *Trees*, as in *Tab.* 6. *Fig.* 3, and 4. which in general may be called *Lapides Pyriformes*, whereof the firſt is a *Black-flint* found ſomewhere near *Bix-brand*, above eleven Inches round, and in Bigneſs and Form reſembling the *Bell* or *King-Pear*: The other a ſort of *Pebble*, Whitiſh without, and Yellow within (as manifeſtly appears at the place of the *Strig*) in the Shape of a *Warden-Pear*, found in the Pariſh of *Waterſtock*, by the Ingenious Sir *George Croke*, ſomewhere near his Houſe.

137. In the Pariſh of *Whitchurch*, not far from *Hardwick* Houſe, I found a hard Stone in the Form of an *Apricock*, with

with the *Rimula* or cleft from the *Pedicle* to the *Apex*; juſt as in the true *Plum*, and as depicted *Tab.6. Fig.5.* And in the Quarries of Rubble-ſtone near *Shotover* Hill, I met with a kind of *Spar*, ſhot exactly into *Protuberancies* (and in the whole Bulk) like a *Mulberry*, as in *Fig. 6.*

138. On the *Chiltern* Hills near *Sherbourn*, I found a White Flint, with another ſet in it, in the Form of a *Luca* Olive, as in *Fig. 7.* To which may be added, the *Lapides Judaici* of *Oxford-ſhire*, which though of a much more ſlender and longer Figure than any ſort of *Olive*, yet becauſe in other Countries they are found in that Shape, and for that very reaſon called ſometimes *Pyrenes*, and treated of by *Authors*[i] amongſt *Stones* relating to the *Fruits* of *Trees*, I ſhall not change their place. We find them here of different Sizes, from about two Inches in Length, and an Inch and half in Circuit, downwards to an Inch and leſs in Length, and not much above half an Inch round: Moſt of them have a kind of *Pedicle*, from which they ſeem to have had their Growth, and are *ridged* and *channelled* the whole Length of the *Stone*, the *Ridges* being *purled* with ſmall Knots, ſet in the *Quincunx* Order, as in *Tab. 6. Fig.* 8. As to their *Texture*, I find it to be very curious, made up of *Lamellæ* or little thin *Plates*, not unlike the *Stone Selenites*; only theſe are *opaque*, and the whole Bulk of the *Stone* indeed much different. The *Plates*, as in the *Selenites*, ſeem to be made up of *Strings*, which in moſt of them run *three*, but in ſome but *two* ways; according to the running of theſe *Strings* the *Stones* will eaſily cleave, but generally ſome one way rather than any other, which moſt commonly is agreeable to the *Helical* running of the *Ridges* of Knots or Furrows between them, yet all ways obliquely to the *Axis* of the Stone, as is perfectly ſhewn, *Tab. 6. Fig.* 9. which repreſents the *Stone* broken the three ſeveral ways.

139. By *Authors* they are ſaid to be of different *Sexes*, the leſſer and rounder of the *Feminine*, and the greater and longer of the *Maſculine* Gender; whereof the former is good againſt the *Stone* in the *Bladder*, and the latter againſt it in the *Kidneys*, for which reaſons they are ſometimes by *Authors* called *Eurrhei*, and *Tecolithi*. The greater and longer, ſays *Geſner*[k] are rarely found, but that muſt be reſtrained to his *own* Country; for here in *Oxford-ſhire*, and

[i] Geſner *de Figuris Lapidum, cap. 9.* [k] *Idem loco citato.*

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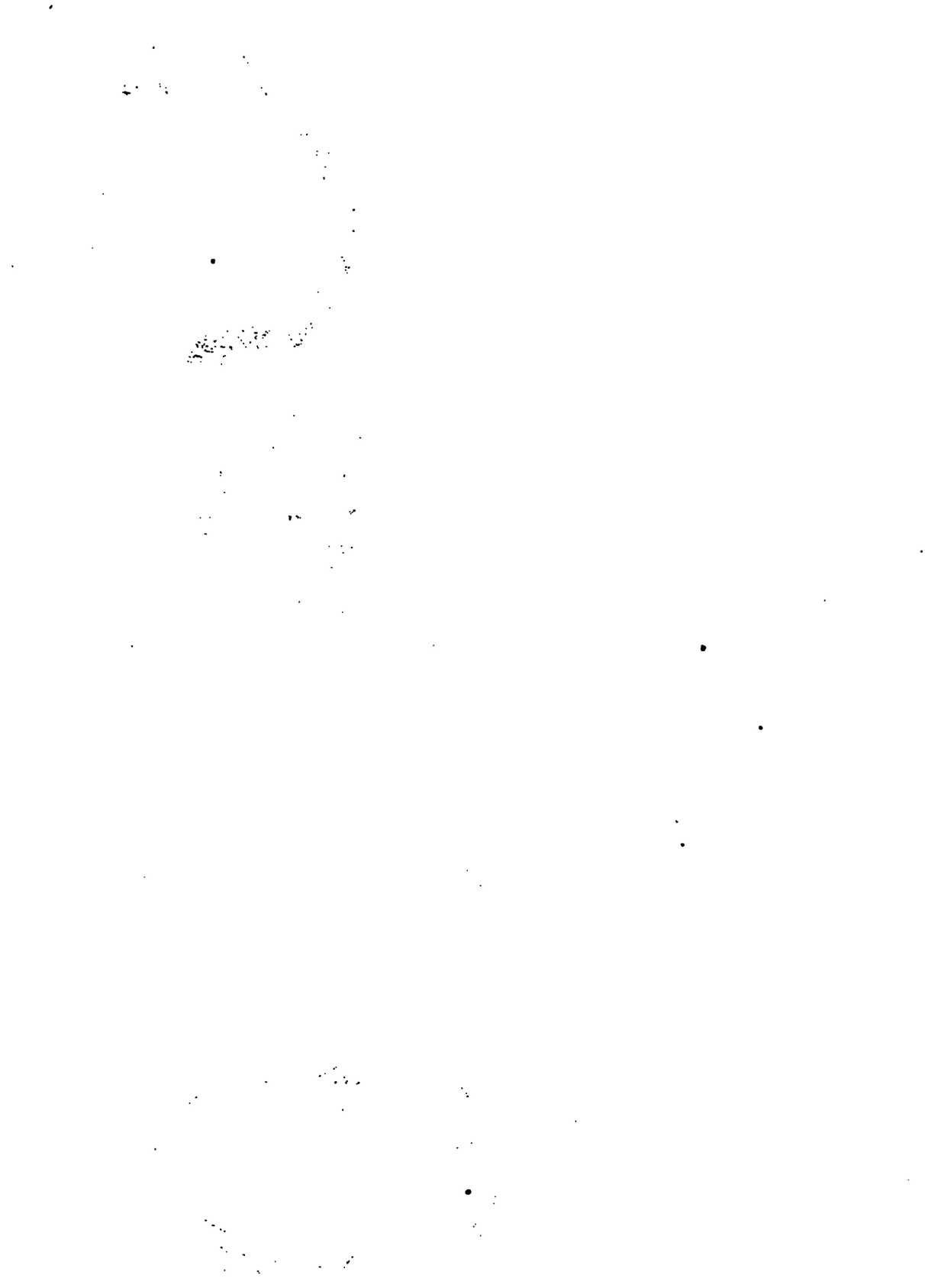

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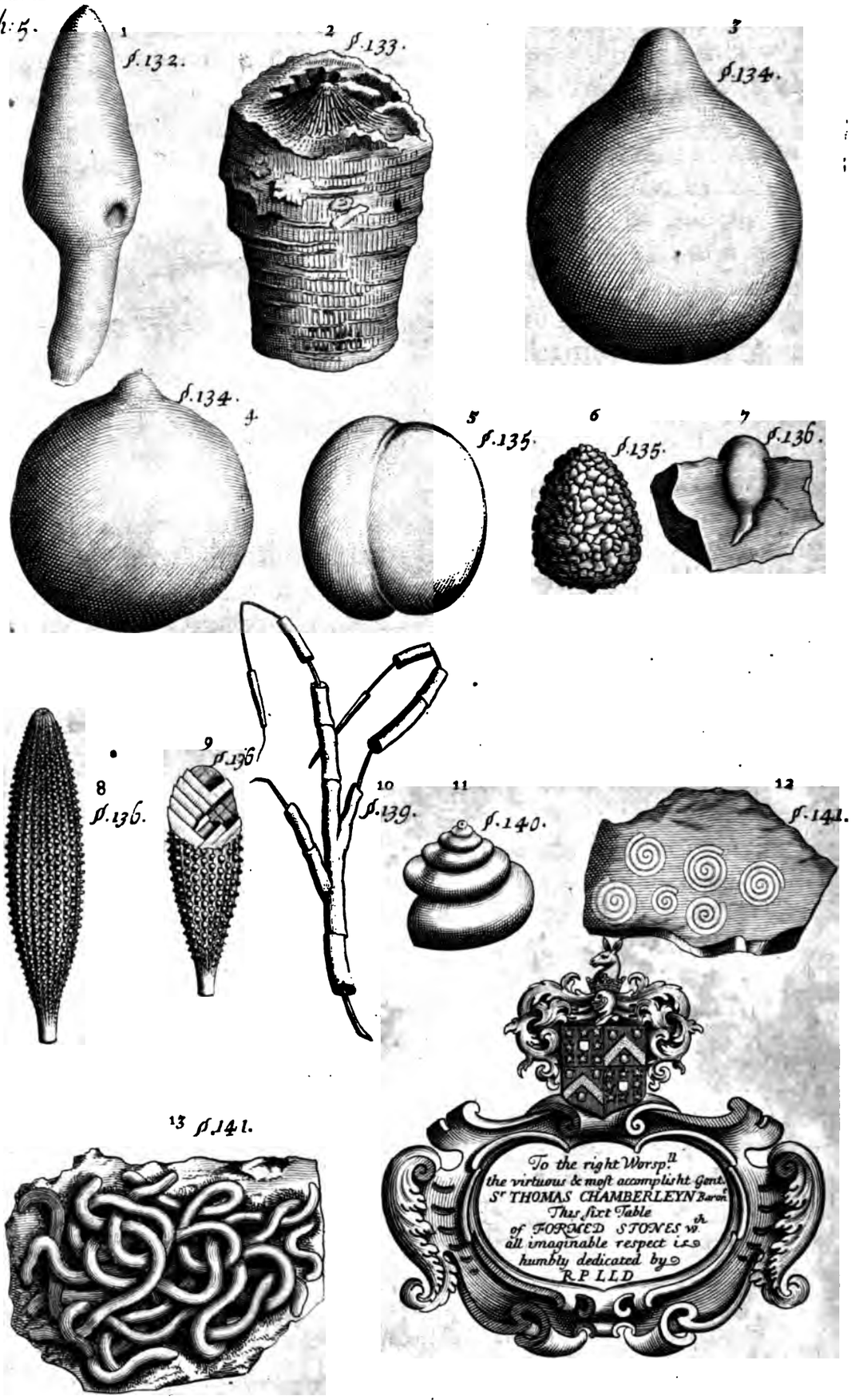

particularly in the Quarries of Rubble-ſtone near *Shotover* Hill, we have plenty of them.

140. There is another ſort of *them* alſo at the ſame place, much more ſlender than the reſt, plain and ſmooth, without either *Ridges* or *Channels*, mention'd by *Cæſalpinus* [l]; which (and not the *Lapis Judaicus*) by *him* is ſaid to be the true *Tecolithus* of *Pliny* [m], that breaks and expels the *Stone*, if the *Patient* do but lick it. Of Colour without, it is a Whitiſh Yellow, and breaks into ſhining White *Plates* obliquely to the *Axis* of the *Stone*, like the former, but whether made up of *Threds* running differing ways, I could not afford to try, having but one of the kind; which was found and given me, beſide ſeveral other Matters of the ſame Nature, by my very good Friend Dr. *Tyſon*, an ingenious and induſtrious Searcher into the Works of *Nature* and *Arts*.

141. Hither alſo muſt be referr'd the freſh Water *Adarce*, made at the *Caſcade* at *Sommerton*, which though but a meer *Incruſtation*, and formed not of it ſelf, but *ad Formam alterius, viz.* of the *Graſs* about which it gathers, and therefore none of the *Lythophyta;* yet it having ſome *Form*, though but *accidental*, I have thought rather fit to miſplace it here, than omit to ſhew the Reader how prettily the *Graſs* is ſheathed with *Stone*, which is accurately expreſſed by *Fig.* 10.

142. Thus having done with the *Lapides φυσικῶς*, I proceed to the *Stones* reſembling *Animals*, either in the whole or parts; amongſt which, ſome there are that ſeem to have been *Reptils* petrified, which poſſibly enough coming to the places where they are now found in *Stone*, without the difficulties of a *Flood*, may be true enough too: though I know ſome places in other *Counties*, where there are *Cochleamorphit*'s or *Snail-ſtones* ſo thick, that they ſeem unlikely to have ever been the *Spoils* of that *Animal*. In *Oxfordſhire* indeed I have met with but two, one at *Teynton*, and another in the Rubble-quarries near *Shotover* Hill, both which being of the ſame *Shape*, Colour and Bigneſs, are repreſented together under *Fig.* 11.

143. At the ſame Rubble-quarries we find alſo the *Lapides Vermiculares*, or *Worm-ſtones* of two ſorts, whereof one is of a Whitiſh Yellow Colour, not hollow within, and as far as I could perceive of the ſame Texture with the *Rubble-ſtone* it ſelf; ſome of them are of the Bigneſs of a ſmall

[l] Andreas Cæſalpinus *de Metallicis, lib.* 2. *cap.* 44. [m] *Nat. Hiſt. lib.* 37. *cap* 10.

Quill,

Quill, and lie in the Rock in *mezzo rilievo* irregularly contorted, much after the manner of the *Vermicchiara*, or *Alcyonio Mileſio* of *Ferrante Imperato**, as in *Tab.* 6. *Fig.* 13. whereas the other ſort lies in the very Body of the *Stone*, of a White Colour, and regularly curled up like the Spring of a *Watch*, as in *Fig.* 12.

144. After thoſe that concern *Reptils*, come we next to *Formed Stones* that reſemble the parts of *Four Footed Beaſts*, whereof we meet with one ſort in the Quarries at *Heddington*, ſet in the Body of the *Stone*, the moſt like to the Head of a Horſe of any thing I can think of; having the *Ears*, and *Creſt* of the *Mane* appearing between them, the places of the *Eyes* ſuitably *prominent*, and the reſt of the *Face* entire, only the *Mouth* and *Noſtrils* are abſent in them all, as in *Tab.* 7. *Fig.* 1. Theſe are plentifully enough found, and of divers Sizes, yet not mention'd that I know of by any *Author*, wherefore I have taken the Boldneſs to fit them with a Name, and in Imitation of other *Authors* (in the like Caſe) ſhall call them *Hippocephaloides*.

145. At *Heddington* in the ſame Quarry there are plenty of *Cardites*, or *Stones* in the Forms of *Hearts*, but by *Authors*, becauſe of their Bigneſs, generally called *Bucardites*, or Stones like *Bull's Hearts*. Theſe at *Heddington* are all of them of a Whitiſh Yellow Colour, ſmooth and plain, as in *Tab.* 7. *Fig.* 2. but there are others found about *Briſe-Norton* and *Witney*, that ſeem to be ribbed on each ſide, as in *Fig.* 3. Of theſe I had one ſent me by my worthy Friend *Robert Perrot* Eſq; from *North-Leigh*, ten Inches round, and near two Pounds in Weight, which is the biggeſt of the kind that ever I yet ſaw, except one that I found at *Shetford*, going up a little Hill Eaſt-ward of the *Town*, about 20 Pounds in Weight, though broken half away, curiouſly reticulated with a White-ſpar-colour'd *Stone*, as in *Tab.* 7. *Fig.* 4. which being much too heavy for my Horſe-portage, was afterward upon my Direction, fetch'd away by the Ingenious Sir *Anthony Cope*, ſince whoſe Deceaſe it is come I ſuppoſe into the hands of his equally Ingenious Brother Sir *John Cope*, the Heir of his Virtues as well as Eſtate.

146. To theſe add the *Orchites*, or *Lapides Teſticulares*, that lie at the Foot of *Shotover* Hill, which though indeed they extravagantly exceed thoſe parts as well of *Beaſts* as *Men*, yet of the two I rather thought fit to place them here: Moſt of them lie in Pairs coupled together, as in

* Dell' *Hiſt. Naturale, lib.* 27. *cap.* 8.

Tab.

Tab. 7. *Fig.* 6. and are called *Diorchites;* but ſometimes (as it alſo falls out in monſtrous *Animals*) there are three of them found together, and then we call them *Triorchites*, whereof there are two or three on the Foot of the ſame Hill of ſo vaſt a Bigneſs, that I gueſs they cannot be leſs than a *Tun* in Weight: I am ſure that which lies higheſt on the Hill, and is here repreſented *Fig.* 5. is ſo much at the leaſt. Of theſe all that Weſtern ſide of the Hill ſeems to be compoſed, if one may gueſs by their Appearance above the ground on each hand the way; but how they ſhould come there, or with what *Animal-mould* formed (if not by ſome peculiar *plaſtick* Power in the *Earth*) I leave to the Favourers of that Opinion to find.

147. Hither alſo I muſt refer, for the very ſame reaſon, a ſort of Stone found in the Quarries of Rubble-ſtone near *Shotover*, compoſed as it were of *Filaments* like *Hair*, which yet muſt not be the *Polythrix* of *Pliny*[o], becauſe not Greeniſh, nor the *Boſtrychites* of *Zoroaſtres*, or the *Corſoides* of the ſame *Pliny*[p], becauſe neither Grey nor long. However, let it be a *Thrichites* (though the Word be differently uſed by *Dioſcorides*[q]) and the rather placed here, becauſe moſt like the ſhort Hair of *Beaſts:* Of Colour it is Yellowiſh, and each Hair (as they appear in the *Microſcope*) ſeems to be *ſtriated* and *channelled* its whole length; but to the naked Eye they ſhew themſelves only in plain *Columns*, which at certain Diſtances are all jointed, as in *Fig.* 7.

148. Beſide the *Stones* repreſenting the parts of the *Viviparous*, I have met with one that ſeems to belong to the *Oviparous Quadrupedes*, and that is a *Bufonites* or *Toad-ſtone*, which perhaps may better deſerve its Name, than any yet mention'd by other *Authors*. For by my *Bufonites* or *Toad-ſtone*, I intend not that ſhining poliſh'd *Stone*, firſt demonſtrated by the Ingenious and Learned Dr. *Merret*, in His *Majeſty's* Preſence, to be nothing elſe but the Jaw-tooth or Grinder of the *Lupus Marinus*, and ſo confeſt to be by the *Gold-ſmiths* that ſold them. But a certain reddiſh liver'd-colour'd real *Stone*, indeed of the Form of thoſe of the *Shark-fiſh*, *i. e.* like the *Segment* of a *Sphere*, Convex at the top, and Concave underneath, as in *Tab.* 7. *Fig.* 8. but found amongſt the Gravel in *Magdalene-Coll.* Walks: and may be ſo called (as I preſume the others are) from ſome Reſemblance they have to the Figure of a *Toad*'s-*skull*,

[o] *Nat. Hiſt. lib.* 37. *cap.* 10. [p] *Idem loco citato.* [q] *Lib.* 5. *cap.* 114.

not that there comes any ſuch thing out of a *vexed Toad*'s Head, as is commonly and no leſs fabulouſly reported.

149. The *Stones* that reſemble the parts of *Men* being next to be conſidered, I ſhall begin with thoſe that have Relation to the *Head*, and ſo deſcend in order to the lower *Parts*: According to which *Method*, the firſt that preſents it ſelf is one of the *Brontiæ*, whoſe upper Part was deſcribed before, §. 33. of this *Chapter*, where I had alſo ſhewn its *Baſis*, but that it ſomewhat reſembles part of the ἐγκέφαλοι, or *Baſis* of a *Man*'s Brain, yet included within its *dura Meninx*, with the ſeveral *Pairs* of *Nerves* cut aſunder as they come through it, according as the *Brain* is prepared and inverted in Dr. *Willis*'s new way of diſſecting it: Beſide the *Exit* of the *proceſſus Mammillares*, and ſeveral *Pairs* of *Nerves*, it has a fair Reſemblance of the *Cerebellum* at *aa*, and of the *Medulla oblongata* at *bb*, as is plainly repreſented in *Tab.* 7. *Fig.* 9. This was found, as above-ſaid, in the *Chiltern Country*, and much better deſerves the name of *Encephaloides*, than any deſcribed by *Aldrovandus* [r], or others.

150. Add hereunto another ſort of *Stone*, found in the Rubble-Quarry near *Shotover* Hill, lively repreſenting the *Olfactory Nerves* or *par primum*, entire and whole, and not cut off. Of theſe there are many to be found in theſe *Pits* of a Yellowiſh Colour, ſmooth without, and I think all of them (for I have broke ſeveral) hollow within, as in *Tab.* 7. *Fig.* 10.

151. I have alſo a *Stone* (not unlike a *Pebble*) found ſomewhere in the Gravel near the *City of Oxford*, of an Oval Figure, and for the greateſt part of a Reddiſh Colour; but at one end diſtinguiſhed, firſt with a Circle of White, within which is a *Zone* of the proper Colour of the *Stone*, and then a round *Pupilla* of White, in the whole reſembling the Figure of an *Eye* obſcured by a *Cataract*, as in *Tab.* 7. *Fig.* 11. This I ſhould have taken for the *Stone* called *Beli Oculus*, but that *Boetius* [s] expreſly makes the Body of that to be of a White Colour: The neareſt it comes to any yet deſcribed, is the *Leucophthalmus* of *Pliny*, which he plainly ſays is of a Reddiſh Colour, in which yet it carryeth the Form of an *Eye* both for White and Black [t]: And ſo does ours, only it wants the Black *Pupilla*, which we muſt ſup-

[r] *Muſæum Metallicum, lib.* 4. *cap.* 1. *pag.* 477. [s] Boetius de Boot, *de lapid. & gem. lib.* 2. *cap.* 99. [t] *Nat. Hiſt. lib.* 37. *cap.* 10. [t] *Vid.* Eraſmi *Colloquium cui Tit. Peregrinatio Religionis ergo.*

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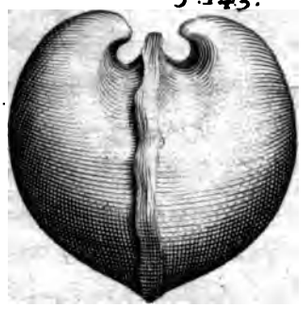
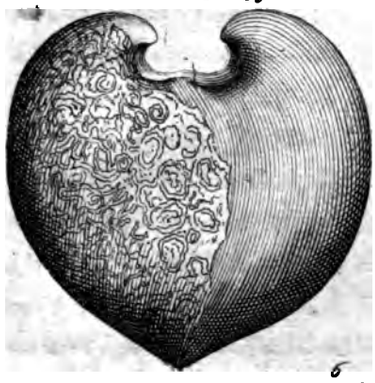
1 f. 142.

2 f. 143.

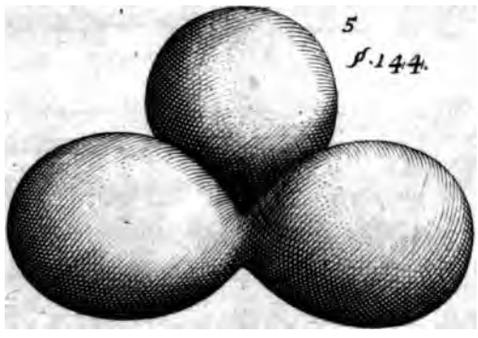


3 f. 143.

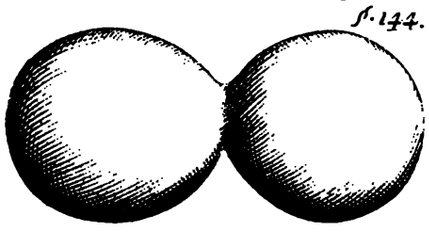
4 f. 143.



5 f. 144.



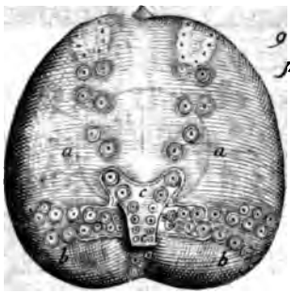
6 f. 144.



f. 145. 7

8 f. 146.

9 f. 147.



10 f. 148.

11 f. 149.

12 f. 150.

13 f. 151.

To the right Worsp.
S.r IOHN D'OYLY Baron.t in whom lody
all the virtues of His ancient horse.
This 2.d Table
of FORMED STONES with all due
respect is humbly presented by
R. P. L. D.

poſe to be covered by a *Cataract*. However, it may paſs for an *Ophthalmites*, or ſome ſort of *Eye-ſtone*: whence I proceed to ſome others, in Shape alſo of another of our *Senſes Organs*.

152. Which by Reaſon they ſo well reſemble the *Ears* of a *Man*, though much leſs, as in *Tab.* 7. *Fig.* 12. I have made bold to call them *Otites*, or *Auriculares*: Of which we have plenty in the Rubble-Quarries near *Shotover*, and in the Banks of the High-ways North of *Fulbrook* Church; but the moſt I have ſaw any where yet, are in a Bank near a *Spring* riſing at *Sommerton* Towns-end, Eaſtward from the Church, in the Lordſhip of the Worſhipful *Richard Fermor* Eſq; whoſe many ingenious Contrivances about his Houſe, beſide other Aſſiſtances he readily afforded me, have eminently contributed to this *Hiſtory*, as will more abundantly appear in the Chapter of *Arts*.

153. From the *Upper*, I deſcend next to ſuch *Formed Stones* as reſemble any of the Parts of the middle *Ventricle* or *Thorax*: whereof I met with ſome on *Stoken-Church* Hill, of a Flinty Subſtance, ſtrangely like to *Human Paps*, or *Duggs*; having not only the *Mamma*, but the *Papilla* too, ſurrounded by an *Areola*, and ſtudded with ſmall Protuberancies, as in *Tab.* 7. *Fig. ult.* and therefore well deſerving the name of *Mammillares*: than which yet I had once a much better Pattern, unhappily loſt in the Portage, betwixt my *Chamber* and the *Gravers*.

154. And if we look further into the *Inner Parts*, I have a *Stone* that ſo exquiſitely repreſents the *Heart* of a *Man*, as in *Tab.* 8. *Fig.* 1. that at, and near the *Baſis*, there remains the Trunck of the deſcending part of the *Vena Cava* at *a*, the aſcending Portion of the *Vena Cava* at *b*; and from the left *Ventricle* the Trunck of the *Arteria magna*, tending upwards at *c*, and a Portion of the ſame *Artery* tending downards at *d*. This was alſo found on the Hills near *Stoken-Church*, being a Whitiſh kind of *Flint*, and perhaps may merit the name of *Anthropocardites*. Whereunto add another found in the Gravel near *Oxford*, by my Ingenious Friend *John Baniſter* M. A. of *Magdalene* College, which though not ſo exactly of the Shape of a *Heart* as the *former*, yet becauſe *ſtellated* all over from the *Baſis* to the *Mucro*, as in *Fig.* 2. I thought its Admittance would not be ungrateful to the *Reader*.

155. Other *Stones* there are alſo in Likeneſs of ſome Parts of the *Abdomen* or *loweſt Ventricle*; ſuch are the *Stones*,

Didymoides found in the Quarries of Rubble Stone near *Shotover* Hill, having upon it both the *Rugoſity*, and *Suture* of the *Scrotum*, and *Phalloides*, which I met with near the *Wind-Mill* at *Nettlebed*, perfectly repreſenting the *Glans* and *Præputium penis humani;* but without any *Frenum* faſten'd to the *Urethra:* of which out of Modeſty I have given no *Sculptures*.

156. To theſe add another *Stone* which we may call *Lapis Nephriticus*, not from any likelineſs either in Colour or Effect to the *Whitiſh Green Stone* uſed in Diſtempers of the *Kidneys* (though the *Signature* it carries might perſwade a Tryal) but from the Colour and Figure it has of the *Kidney* of an *Animal*, with a *Trunck* of one of the *Ureters* deſcending from the hollow of it, as in *Tab.* 8. *Fig.* 3. This *Stone* was lent me by the Reverend and Univerſally Learned Dr. *Ralph Bathurſt*, then *Vice-Chancellor* of *Oxford*, and *Dean* of *Wells*, one of the moſt cordial *Encouragers* of this *Deſign;* who found it hanging to an *Oyſter* by that *part* which repreſents the *Ureter*, which was then ſo ſoft, that he eaſily cut it away with his Knife; but within leſs than an Hour (like the *Gorgonia* of *Pliny**) it grew as hard as the reſt of the *Stone*, which I gueſs may be equal to that of a *Pebble:* Preſerving, I ſuppoſe, its native ſoftneſs whilſt it enjoyed the *Salt Steams* in the heap of *Oyſters*, and not hardning till expoſed to the purer *Air;* which evidently ſhews (though the Opinion be exploded of *Coral*) that there are indeed ſome other *Sea* things, ſoft under Water, or whilſt they enjoy the Steams of it, that as ſoon as expoſed to the freſher *Air*, become preſently *Stones*.

157. Next the *Stones* that relate to either of the three *Ventricles*, come we next to ſuch as concern the *Artus*, or other *Members* of the *Body:* Amongſt which, I have one dug out of a Quarry in the Pariſh of *Cornwell*, and given me by the Ingenious Sir *Thomas Pennyſton*, that has exactly the Figure of the lowermoſt part of the *Thigh-Bone* of a *Man*, or at leaſt of ſome other *Animal*, with the *capita Femoris inferiora*, between which are the *anterior* (hid behind the *ſculpture*) and the larger *poſterior Sinus*, the ſeat of the ſtrong *Ligament* that riſes out of the *Thigh*, and that gives ſafe paſſage to the *Veſſels* deſcending into the *Leg:* And a little above the *Sinus*, where it ſeems to have been broken off, ſhewing the *Marrow* within of a ſhining *Spar-like* Subſtance, of its true Colour and Figure, in the *hollow* of the *Bone*, as in *Tab.* 8. *Fig.* 4. In compaſs near the *capita Fe-*

* *Nat. Hiſt. lib.* 37. *cap.* 10.

moris

moris juſt two Foot, and at the Top above the *Sinus* (where the *Thigh-Bone* is as ſmall as any where) about 15 Inches; in weight, though repreſenting ſo ſhort a part of the *Thigh-Bone*, almoſt 20 Pounds.

158. Which are *dimenſions*, and a *weight*, ſo much exceeding the ordinary courſe of *Nature*, that by *Agricola*[u], *Cæſalpinus*[w], and *Kircher*[x], ſuch *Stones* have been rather thought to be Formed either in hollows of Rocks caſually of this *Figure*, and filled with *materials* fit for *Petrification*; or by ſome other ſportive *plaſtic Power* of the Earth, than ever to have been real *Bones*, now *Petrified*.

159. And that indeed there are *Stones* thus naturally faſhioned, muſt by no means be doubted, ſince no queſtion the ſtony Teeth of which there are Cart-loads to be had in a *Cave* near *Palermo*, beſide others in the ſhape of *Leg* and *Thigh-Bones*, and of the *Vertebræ* of the *Back*, are no others than ſuch[y]. None of them, as the judicious *Charles* Marqueſs of *Ventimiglia* well obſerved, having any *ſigns* of *hollowneſs* for the place of the *Marrow*, much leſs of the *Marrow* it ſelf.

160. Which has fully convinced me that this *Stone* of ours was not ſo produced, it having thoſe *Signs* exquiſitly expreſſed; but muſt have been a real *Bone*, now *Petrified*, and therefore, indeed, not properly belonging to this place. However, it being now a *Stone*, and not coming to my Hands whilſt I was treating of *Petrifications*, I have rather thought fit to throw my ſelf upon the *Reader*'s Candour, and *miſ-place* it here, as I did the *Adarce*, than altogether to omit ſo conſiderable an Inſtance.

161. But againſt this Opinion of its having been once a *real Bone*, there lies a conſiderable *Objection*, *viz.* that it will be hard to find an *Animal* proportionable to *it*, both *Horſes* and *Oxen* falling much ſhort of *it*. To which if it be Anſwered, that it may be much encreaſed in the *Petrification*; it may again be replied, that though indeed there be an *Augment* in ſome *Petrifications*, yet that it is not ſo in *all*: for though in all *Petrifications* there be an Ingreſs of *Steams* and *Particles* that were not there before, and therefore either a Ceſſion of ſome other Body required, or a neceſſary *Augmentation*; yet that thoſe *petrifying Steams* are ſometimes ſo thin and fine, that they require only the *Ceſſion* of ſome *Airy* or *Æthereal Atoms*, contained be-

[u] *De Natura Foſſilium, lib.* 7. [w] *De Metallicis, lib.* 2. *cap.* 48. [x] Kircheri *Mundus ſubterran. lib.* 8. *ſect.* 2. *cap.* 4. *diſq.* 2. [y] *Idem loco citato, diſq.* 1.

fore

fore in the porous parts of the *Body* to be changed, as indeed it appears to have been in this *Inſtance* of our *petrified Bone*: for with it was found a *Tooth*, depicted *Fig.* 5. in its exact Bigneſs, weighing two Ounces and ¼, not at all *petrified*, but perfect *Bone* ſtill, rather exceeding than any thing ſhort of it in *proportion*; whence it muſt neceſſarily be concluded, that there could be but little if any *Augmentation* at all.

162. And if it be asked, how it ſhould come to paſs that the *Thigh-bone* ſhould be *petrified*, and not the *Tooth*, it may be anſwered, and that *experimentally* too, that *Teeth* admit not ſo eaſily of any Change or *Petrification*, becauſe they are much more cloſely compacted *Subſtances* than any other *Bones*; whence 'tis, that we ſo often find them ſound and good, when all other *Bones* are conſumed. Thus at *Bathendown*, or *Bannerdown* (the *Mons Badonicus* of *Nennius*) not far from *Bath* in *Somerſet-ſhire*, there have been Cap-fulls of *Teeth*, picked up by ſuch as followed the Plough[z], but we are told of no other *Bones* found there. And we are informed by *Fazellus*, in his Hiſtory of *Sicily*, that of two *Giant's Skeletons*, one found by *Johannes a brachiis fortibus*, in the Field *Gibilo*, a Mile South of the Town *Mazarenum*, now *Mazara*; and the other by *Paulus Leontinus*, not far from *Palermo*, that when they came to be touched, all fell into Duſt but the *dentes molares*, or the greater Teeth called the *Grinders*[a], ſufficient Arguments (I had almoſt ſaid) of their unalterable State.

163. Since then it ſeems to be manifeſt, that the Size of the *Bone* has been ſcarce alter'd in its *Petrification*: It remains, that it muſt have belong'd to ſome greater *Animal* than either an *Ox* or *Horſe*; and if ſo (ſay almoſt all other *Authors* in the like Caſe) in probability it muſt have been the *Bone* of ſome *Elephant*, brought hither during the Government of the *Romans* in *Britain*: But this Opinion too lies under ſo great Difficulties, that it can hardly be admitted; which are briefly theſe.

164. Firſt, That we do not find that any of the *Roman Authors*, who elſewhere are large enough in deſcribing the *Elephant's* Behaviour in *Fight*, and how terrible they were to ſome of the *Trans-Alpine* Nations, mention any ſuch matter in any of their *Expeditions* into *Britain*. *Dion*[b], 'tis true, ſays, that *Claudius Cæſar*, when he was called to the

[z] Stow's *Annals, in the Life of King* Arthur. [a] Tho. Fazelli *de rebus Siculis Decad. prioris, lib.* 1. *cap.* 6. [b] Dionis Caſſii *Rom. Hiſt. lib.* 60.

Aſſiſt-

Aſſiſtance of the *Prætor Aulus Plautius*, ſore preſſed by the *Britains*, then revenging the Death of their ſlain Prince *Togodumnus*, amongſt other Preparations, gathered together his *Elephants*, τῶν τε ἄλλων, καὶ Ἐλεφάντων συναγείρετο, are his very Words. But *Suetonius* in his Life, where he is very particular concerning this *Expedition* into *Britain*, mentions no ſuch matter; nor indeed doth *Dion* ſay, that he brought *them* hither with *him*, only that *he* gather'd *them* together in order to it. But they both agree in this, that *he* met with ſuch Storms in his intended Paſſage by *Sea* thither, that he was forced to put in at *Marſeilles*, and march by Land quite through *France* to *Geſſoriacum*, now ſuppoſed to be *Boulogne*, from whence 'tis true he paſſed over to *Britain*. But ſo ſwift was his Motion in this *Expedition*, that they alſo both agree, that he was returned to *Rome* again within ſix Months, a time ſcarce agreeable with the Motion of ſo unwieldy Creatures as *Elephants*; which in all likelihood were therefore left behind at *Marſeilles*, becauſe hindred by the Weather of their Sea-portage, and never tranſported into *Britain* at all. Nor find I in other *Authors*, that it was ever after attempted. One there was, 'tis true, ſent hither as a Preſent by St. *Lewis* IX. King of *France*, to King *Henry* III. *Anno* 1255. which, ſays *Matthew Paris* *, was the firſt ſeen on this ſide the *Alps*; and perhaps there may have been two or three brought for Show hither ſince: but whether it be likely any of theſe ſhould be buried at *Cornwell*, let the *Reader* judge.

165. Beſide, had this *Thigh-bone* and *Tooth*, and the ſeveral others that have been found in *England*, ſuch as the two *Teeth* taken up at *Edulfsneſs* in the County of *Eſſex*, in the Reign of King *Richard* the *Firſt*, that might have been cut into two Hundred of an ordinary Size[c]; and divers other *Bones* and *Teeth* found at *Chartham* near *Canterbury* [d], and *Farley* near *Maidſtone* in *Kent*, whereof I have one now by me, dug up and given me, by the truly Noble and Ingenious *Jacob* Lord *Aſtley*, near ſeven Inches round, and five Ounces and ½ in Weight, of which more when I come into *Kent*. Had, I ſay, theſe *Bones* and *Teeth* been ever the Spoils of *Elephants*, we ſhould certainly at ſome time or other have met alſo with thoſe greater *Tusks* with which they are armed, of which I have not heard there

* Matth. Paris *in Reg.* Hen. III. *in Anno Dom.* 1255. [c] Cambden *in* Eſſex. [d] Chartham *News, ſet forth by Mr.* John Somner.

have

have been any yet found in *England*, nor any thing like them.

166. Add hereunto, what prevails with me much, that ſince the great Conflagration of *London*, *Anno* 1666. upon the pulling down of St. *Mary Wool-Church*, and making the Site of it into a *Market-place*, there was found a *Thigh-bone* (ſuppoſed to be of a *Woman*) which was to be ſeen at the *King's-Head Tavern* at *Greenwich* in *Kent*, much bigger and longer than ours of *Stone* could in proportion be, had it been entire. We have alſo here at *Oxford**, a *Thigh-bone* that came from *London*, three Foot and two Inches long, which I gueſs may be of an agreeable proportion with ours. And the ſame Day I brought the Tooth from *Cornwell*, there were two others happily procured for me by my worthy Friend *Samuel Fowler*, dug up in the Pariſh Church of *Morton-Valence*, about ſeven Miles from *Gloceſter*, in the way thence to *Briſtol*, in all points ſo exactly like the other from *Cornwell*, in Ridges, Cavities, *&c.* that had they not differ'd ſomewhat in Colour, they could ſcarce have any way been diſtinguiſh'd. Now how *Elephants* ſhould come to be buried in *Churches*, is a Queſtion not eaſily anſwered, except we will run to ſo groundleſs a ſhift, as to ſay, that poſſibly the *Elephants* might be there buried before *Chriſtianity* flouriſh'd in *Britain*, and that theſe Churches were afterward caſually built over them.

167. If it be urged out of *Ponticus Virunnius*, and ſome others, that the Emperor *Claudius* was at *Gloceſter*, and that he built that City after his own Name, in Memory of the Marriage of his fair Daughter *Genniſſa*, with *Arviragus* then King of *Britain* [e], where poſſibly he might have ſome of his *Elephants* with him, which might dye and be buried thereabout. It muſt be anſwered, that notwithſtanding the Name of *Claudii Caſtrum*, now *Gloceſter*, ſeems ſo much to favour the Story in hand, that yet in all likelihood there was never any ſuch matter: For neither *Suetonius* [f], who numbers up all the Daughters that he had, and ſhews how given in Marriage, nor *Dion* [g], who does the ſame, (who lived in his time, and had born the Office of *Conſul*) remember any ſuch Daughter, or ſo diſpoſed of to *Arviragus*.

168. Beſide, how was it poſſible that *Claudius*, who came hither, and was returned again to *Rome* within ſix Months,

* *In Scholâ Medicinæ.* [e] Pont. Virunnii, *Hiſt. Britan. lib.* 4. [f] Sueton. *in Vita* Claudii. [g] Dion. Caſſ. *Rom. Hiſt. lib.* 60.

ſhould

ſhould find ſo much time, as to come up ſo far in the Country as *Gloceſter*, much leſs to celebrate ſuch a Marriage, and build that *City*, ſince the ſame *Dion* expreſly ſays, that of thoſe ſix Months time, he was here in *Britain* but ſixteen Days, ἀφ' ὧν, ἐκκαίδεκα μόνας ἐν τῇ Βρεττανίᾳ ἡμέρας ἐποίησε, are his own Words[h], and thoſe ſixteen Days in all Probability, were ſpent in ordering his Army, and joyning them with the Forces of *Plautius* that lay then at the Mouth of *Thames* ready to receive him, and in taking of *Camulodunum*, which the ſame *Author* aſſerts he did that *Expedition*, and ſo immediately returned.

169. But what is *inſtar omnium* in this difficult point, there happily came to *Oxford* while I was writing of this, a living *Elephant* to be ſhewn publickly at the Act, *An.* 1676. with whoſe *Bones* and *Teeth* I compared ours; and found thoſe of the *Elephant* not only of a different Shape, but alſo incomparably bigger than *ours*, though the Beaſt were very young and not half grown. If then they are neither the Bones of *Horſes*, *Oxen*, nor *Elephants*, as I am ſtrongly perſwaded they are not, upon Compariſon, and from their like found in *Churches*: It remains, that (notwithſtanding their extravagant Magnitude) they muſt have been the Bones of *Men* or *Women*: Nor doth any thing hinder but they may have been ſo, provided it be clearly made out, that there have been *Men* and *Women* of proportionable Stature in all *Ages* of the World, down even to our own Days.

170. The Sons of *Anak*, no queſtion, were very great Men, and *Goliath* for certain was nine Foot nine Inches high[i]. We read alſo of the *Sons* of the *Titans*, and of high *Giants*[k], and of *Giants* famous from the Beginning, that were of great Stature and expert in War[l]. And (to omit the Fables of the *Giants* of Mount *Erice* near *Drepanum* in *Sicily*, 200 Cubits high, of *Tanger* in *Mauritania* 60 Cubits[m], and of the *Giant* found ſtanding in a Rock, cleft by an Earth-quake in the Iſle of *Candy*, 46 Cubits, ſuppoſed to be *Orion*, or *Otus*[n], and ſeveral others mentioned by *Phlegon* *.) Amongſt the *Romans*, *Theutobochus* King of the *Teutones* or *Germans*, vanquiſh'd by *Marius*, is reported by *Florus* to be *inſigne triumphi ſpectaculum*, ſo very Tall, that he was ſeen above all the *Trophies*[o], which were the Spoils of the *Enemies*, uſually carried aloft upon

[h] *Idem loco citato.* [i] 1 Sam. *c.* 17. *v.* 4. [k] Judith 16. *v.* 7. [l] Baruch 3. *v.* 26. [m] *Vid.* Athan. Kircheri *Mundum ſubterr. lib.* 8. *ſect.* 2. *cap.* 4. [n] Plin. *Nat. Hiſt. lib* 7. *cap.* 16. * Phlegon Trallianus *de Rebus Mirabilibus, cap.* 11, 12. 17, 18, 19. [o] Flori *Hiſt. Rom lib.* 3. *cap.* 3.

adventitious and accidental; ſaving in the Longevity of the *Antediluvian Patriarchs.*

176. Beſide this *Gigantick* Thigh-bone, there is another *Stone* at the Foot of *Shotover* Hill, amongſt the *Orchites* afore-mentioned, §. 144. that alſo repreſents one of the *Artus; viz.* the Leg and Foot of a Man cut off above the *Ancle*, as in *Tab.* 8. *Fig.* 6. which from the Toe to the Heel is about a Yard long, and perhaps in the whole may weigh 50 or 60 Pounds: but I take not this for a Petrification as the former, but a Stone formed in this Shape purely by Nature, which may therefore be termed *Andrapodites*, as might all thoſe of the kind mentioned by *Wormius* [y]. To which alſo may be added the *Lapis Acetabulum referens*, whereof there is plenty on the *Chiltern* Hills. And a ſort of *Oſteocolla* found in *Heddington* Rubble Quarries, which ſcraped, has the Smell of burnt Bone, and may I ſuppoſe be the ſame mentioned by *Geſner* *, that was ſent him by *Peter Coldeberg* Apothecary of *Antwerp*.

177. After the Stones that relate to the parts of *Animals*, come we laſtly to thoſe that reſemble things of *Art*, ſuch as that in the Form of a *Button-mould*, *Fig.* 7. whereof there were ſeveral found in the very ſame Quarry with the *Thigh-bone* and *Tooth*, in the Pariſh of *Cornwell*, and no doubt did belong to the Owner of thoſe *Bones*: And the other in the Shape of the *Heel* of an *Old-ſhoe*, with the *Lifts* plainly to be diſtinguiſhed, as in *Fig.* 8. which was found ſomewhere near *Oxford*, and given me by the Right Reverend *Thomas* Lord Biſhop of *Lincoln*, one of the firſt *Promoters* of this Deſign. But both theſe I take to be but *Petrifications*, and therefore miſ-placed here like the *Adarce* and *Thigh-Bone*.

178. But I have another ſort of *Button-ſtone*, ſent me from *Teynton*, which I take to be a meer Production of *Nature*, finely ſtriated from the Top as I have ſeen ſome *Hair-buttons*, as in *Fig.* 9. and may therefore be called *Porpites*: Except we ſhould rather take it for a new ſort of *Echinites*, not yet diſcovered, which is wholly left to the *Reader*'s Choice.

179. In the Quarry of Rubble-ſtone near *Shotover* Hill, I met with a *Spar-like-ſtone*, made I ſuppoſe of the Droppings of petrifying Water, not unlike to the Bags called

[y] *Muſæi Wormian. cap.* 13. *Integrum pedem hominis in lapidem verſum, ſpectandum habet Muſeum Calceolarium*, Joh. Bapt. Olivus, *p.* 68. * Geſner *de Fig. Lapid. cap.* 12.

Ma—

Manicæ Hippocratis, uſed in *Filtrations* by the *Chymiſts*, three one above another as they uſually place them, as in *Fig.* 10. And in the very ſame Quarry I found a ſingle *Trochites* of a cinereous Colour, ſo called from its Likeneſs to a *Wheel*, having *Rays* coming forth of its *Center*, like the Spoaks of a Cart-wheel from its Stock, Hub, or Nave: Theſe are ſaid to have Affinity with the *Lapis Judaicus* in their Texture [z], and with the *Aſteriæ* in the Property of moving in *Vinegar* [a], neither of which I could well try, having but *one*, and that too ſet in a Rubble-ſtone of the Quarry. They are found plentifully Northward in *Holy-Iſland*, and in the Bottom of the Chanel of the River *Tees* [b], at *Braughton* and *Stock* in *York-ſhire*, at *Beresford* in *Staffordſhire* [c], and are commonly there called St. *Cuthbert*'s Beads, whereof I intend *Cuts*, and ſhall treat more at large when I come to thoſe places.

180. At the Pariſh of *Heath* I met with a Reddiſh ſort of *Stone*, in the uſual Form of a *Whet-ſtone*, as in *Tab.* 8. *Fig.* 11. about four Inches long, very hard, and for both thoſe Reaſons not fit for Uſe: it was given me by Mr. *Evans*, then Rector of the place, and ſaid by him to be taken out of a Block of Stone dug in the Quarries thereabout, naturally having grown in that Form. And at *Stonor* there was given me a criſp'd White Stone, taken up not far thence, reſembling a ſort of *Sweet-meat*, not like the *Confetti de Tivoli*, but rather of *Viterbo* mentioned by *Aldrovandus* [d], or a ſort of Sweet-meat we have from *Portugal*.

181. Amongſt the *Stones*, like things of *Art*, I think I muſt alſo number a ſort of *Globular Iron-coloured Balls*, taken up about *Cornwell*; whereof I have two given me by Sir *Thomas Pennyſton*; the one *plain* and ſmooth, the other *granulated* on the Out-ſide, not unlike to an *Orange*, very weighty, and made up within of a golden ſtriated Subſtance from the *Center* to the Circumference, ſhewn in the *Hemiſphere* of one of them, *Fig.* 12. Of theſe there are ſome ſo equally round, as if done by *Art*; and ſo they are ſays *Cambden* at *Huntley-Nab* [e], where under the craggy Rocks they lye ſcatter'd here and there of divers Bigneſſes, ſo artificially by Nature ſhaped round in manner of a Globe, that one would take them to be great *Bullets*, caſt for *Shot*,

[z] Boet. *de Lapid. & Gem. cap.* 227. [a] Geor. Agricola *de Natura Foſſilium, cap.* 5.
[b] *Mr.* Ray's *Topograph. obſervat. p.* 116. [c] *Philoſoph. Tranſact. Numb.* 100. [d] *Muſæum Metallicum, lib.* 4 *p.* 518. [e] Cambd. *in the North-Riding of* York-ſhire.

to

to be diſcharged out of great *Ordnance*. Such as theſe are alſo mentioned by *John Kentmannus*, found *inter lapides ærarios*, which if broken (ſays he) are like the *ſilver* or *cinereous Marchaſite*, out of which ſometimes *Braſs* or *Silver* are ſmelted [f], than which ours are ſomewhat of a better Colour, but whether poſſeſt with thoſe or a better *Metal*, I muſt confeſs I have not tryed, and therefore cannot inform the *Reader*.

182. Hither alſo muſt be referred a *Round Stone* before mentioned, *Chap.* 3. §. 30. containing within it a White ſort of *Earth*, and therefore called *Geodes*, or the *pregnant Stone*; differing from the *Ætites* in this, that whereas that has within it a moveable *Stone*, by the *Naturaliſts* called *Callimus*; this contains only *Earth* or *Sand*, that moves not at all: The outward Cruſt of theſe is ſometimes only an indurated *Chalk*, under which are ſome other Folds like the Coats of an *Onyon*; and when found thus, by the Inhabitants of the *Chiltern* (where they are moſt plentiful) they are called *chalk Eggs*. Others there are of them, whoſe outermoſt *Coats* are hard Black-flints, ſome very thin, and others thicker, according I ſuppoſe to the Seniority of their Generation: For I have ſome of them by me whoſe *Coats* are not much thicker than the Shell of a *Wall-nut*, others Stone half way, and others ſo almoſt to the very *Center*; and theſe Flint *Coats* black without ſide, and gradually whiter and whiter, as they approach nearer to the Whitiſh Earth contained within: whence I am almoſt perſwaded, that however it may be in irregular Flints, that in theſe the Chalky Matter does turn into *Stone*, and is the chief Principle of their Generation.

183. Upon the *Chiltern-hills*, near to *Sherbourn* and *Lewkner*, I found many of the Flints inclining to a *Conical* Figure. And in the Gravel about *Oxford*, I have ſeen *faſciated* Pebbles, having as it were *Zones* or *Girdles* round them, of different Colours from thoſe of the *Stones*. About *Fawler* and *Stunsfield*, the Pebbles before mentioned, *chap.* 4. *ſect.* 18. are moſt of them ſtreaked with *Iron-colour'd Lines*, ſometimes inclining towards one another like the Ramifications of a *Dendrites*; which though not ſo curious as the *Pietra di figure de Boſchi* of *Ferrante Imperato* [g], yet fit me well enough with a Tranſition to the Chapter of *Vegetables*, which immediately follows.

[f] *Catalog. Foſſilium, Tit.* 16. *de Lapid. æratiis à natura effigiatis.* [g] Dell' *Hiſt. Naturale lib.* 24. *cap.* 24.

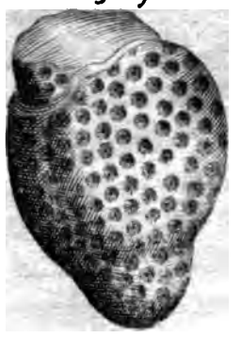
184. Only

ad pag: 143.

TAB. VIII.

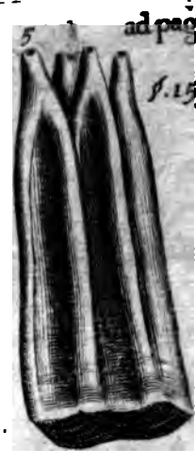
1 Ch: 5. f. 152.

2 f. 152.



3 f. 154.

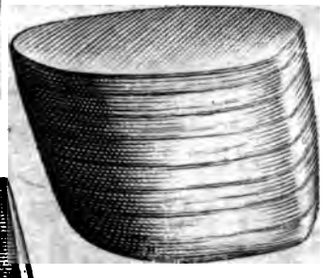
5 f. 159.



4 f. 155.

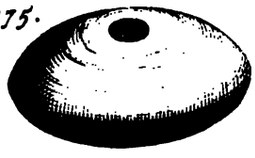
6 f. 174.

8 f. 175.



9 f. 176.

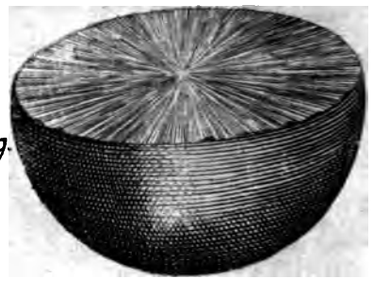
f. 175. 7



10 f. 177.

11 f. 178

12 f. 179.



13 f. 182.

14 f. 182.

To the right Worp.
the learned and curious Artist
Sr. THOMAS PENYSTON Baron
This 8th Table
of formed STONES, taken out of the 4th 6th
and 7th were found in his own grounds
is humbly prisented by R. FIELD

184. Only I muſt beg leave firſt to advertiſe the *Reader*, that what I have aſcribed to Dr. *Merret* concerning the *Toad-ſtone*, *ſect.* 148. I have found ſince the firſt Printing of that Sheet, ſeemingly alſo given to the Learned Sir *George Ent*, by the no leſs Learned Sir *Thomas Brown*, in his *Pſeudodoxia Epidemica*[h], to whether more rightly, let them contend. And that ſince the firſt Printing the Beginning of this *Chapter*, I received from the Right Worſhipful Sir *Philip Harcourt* of *Stanton-Harcourt*, two kinds of *Selenites*, though of the ſame Texture, yet much differently formed from any there mention'd; both of them being *Dodecaedrums*, but the *Hedræ* too as much different from one another, as from any of the former: The firſt ſort of them being made up of two *Rhomboideal* ſides, four oblong, and as many ſhorter *Pentagons;* and two ſmall *Trapeziums*, one half whereof are repreſented *Tab.* 8. *Fig.* 13. And the ſecond, of two oblong *Hexagons*, four oblong *Trapeziums*, four oblong *Parallelograms*, and two large *Pentagons*, one half whereof are alſo repreſented *Fig.* 14. In both which it is to be underſtood, that the *Hedræ* at the Ends of each *Stone*, are oppoſed by two others like them, not according to the Breadth, but Length of the *Stone*. The two *Pentagons* at the Top of the *Stone*, *Fig.* 13. being oppoſed by two others like them, behind the ſmall *Trapezium* at the Bottom of it; and the ſmall *Trapezium* at the Bottom, by another like it behind the two ſhort *Pentagons* at the Top: and ſo the oblong *Parallelograms*, and large *Pentagons* at the Ends of the *Stone*, *Fig.* 14.

[h] Pſeudodox. *Epidem. lib.* 3. *cap.* 13.

ADDITIONS *to* CHAP. V.

§. 1. A large Account of *Formed Stones* ſee in *Britan. Bacon.* p. 75, 76.

§. 17. The *Aſteria* or *Star-ſtone.*] Of theſe *Aſteriæ* ſee *Cambden*'s Diſcourſe in *Lincoln-ſhire*, p. 536.

§. 17. In *Gloceſter-ſhire* they are taken, *&c.*] *Aſteriæ* at *Belvoir-Caſtle* in *Leiceſter-ſhire*, and *Purton* in *Gloc. Britan. Bacon.* p. 81, 82.

§. 63. The *Turbinated* or Wreathed kind of *Stones.*] I am told that the Sands of the *Sea* ſomewhere in *Italy*, viewed by a *Microſcope* by Dr. *Blackmore*, appeared all of this Form.

§. 66. Another ſort, *&c.*] Of a *Shell* like this *Stone* ſee *Buonanni* Claſſ. 2. numb. 39.

§. 69. Others at *Cornwell.*] Of the Procedure of Nature in the Formation of theſe *Stones* ſee *Gaſſendus in vita Perreskii.*

§. 71. The above-mentioned *Conchites, &c.*] Of this *Shell* or *Stone* ſee *Fab. Columna de Purpura,* p. 22. *& de eodem vid.* Buonanni *Claſſ. 2. numb.* 53.

§. 78. *Concha oblonga craſſa.*] Concerning this *Stone Buonanni* much miſtaken. *vid.* Claſſ. 2. numb. 31.

§. 80. A ſort of *Mytuloides.*] This Stone is rather a *Pholoides, de quo vid.* Buonanni *Claſſ. 2. numb.* 29.

§. 83. *Of great eſteem among the French Druids.*] As they are ſtill among the *Welſh,* who call them *Glain Neidr. Glain Neidr* how made, *Britan. Bacon.* p. 12.

§. 96. Whether the *Stones* we find in the Forms of *Shell-fiſh.*] A large Account of *Formed Stones* ſee in *Britan. Bacon.* p. 75, 76. 7, 8, 9. 80.

§. 106. Under this Head may be reduced the large *Brain-ſtones* or *Aſtroites* of *Redi,* which moſt certainly muſt be *Lapides ſui generis:* And ſo muſt the *Globular-ſtones* found in the Grounds near *Sutton-Barn* in the Pariſh of *Borden* in *Kent;* whereof *Thom. Rayner* plowed up one as big as one of the largeſt Cannon-Bullets or *Granado-Shells.*

§. 115. Here it may be remembred that 'tis poſſible, that Shells found on the Tops of Mountains, may be brought thither by the Fall of Spouts. *vid. Nat. Hiſt.* of *Staff.* Chap. 7. §. 45. And that real Shells found deep in the Earth, may be brought thither by the vaſt *ſubterraneous* Indraughts coming from the Sea, which occaſion Springs, ſee *Mercurius Centralis* and *Nat. Hiſt.* of *Stafford-ſhire,* Chap. 2. §. 71, 72. Otherwiſe perhaps they may have remained from the Creation, when GOD diſperſing the Seminal Virtue of *Animals* through the *Univerſe,* where it met with an agreeable *Matrix* as in the *Waters,* there it produced *Shell-fiſh* in their Perfection, and where it met with an improper *Matrix,* as in the Earth, in Imperfection only: however (as *Gaffarell* thinks) it proceeded ſo far forth as it could, and gave the ſame Shape to *Stones, Earths, &c.* as it ſhould have done to the *Shell-fiſh.*

§. 145. As in *Tab.* 7. *Fig.* 2.] Of the *Shell* like this *Stone,* ſee *Buonanni,* Claſſ. 2. numb. 88.

§. 145. As in *Fig.* 3. *Tab.* 7.] Of this *Stone* ſee *Buonanni,* Claſſ. 2. numb. 49. and 81.

§. 155.

§. 155. *Phalloides.*] *Priapolithus*, *vid.* Borrelli *Obſerv. Med. Phyſ. Cent.* 2. *Obſ.* 85.

§. 161. For with it was found a *Tooth.*] The Cut of the *Tooth* here deſcribed ſee in *Geſner de Aquatil. lib.* 4. *p.* 497. who confeſſes himſelf to have been miſtaken concerning it, as I my ſelf was when I wrote this Hiſtory; but now I am well ſatisfied that 'tis the Tooth of an Horſe.

§. 172. Here it may be remember'd, that Prince *Gawyn*, Siſter's Son to King *Arthur*, was 14 Foot high: *Words of* Chaucer *explain'd in verbo* Gawyn.

§. 174. About the Straits of *Magellan* of 10 Foot.] Theſe People in *Terra del Fuego* are called *Pantagones*: ſee the Map of *Bernardus Joh. Bremenſis.*

§. 174. And one near the River of *Plate* 12 Foot high.] Here ſee an Account of the *Æthiops*, and *Syrbotæ* in *Pliny*, who were 8 ½ Cubits high. To which may be added, that there was a Corps found at *Ivy* Church in *Wilts* 12 Foot high. *Brit. Bacon.* p. 74. And in opening the Ground of the Church-yard of *Wotton* in *South-Rey*, to enlarge a Vault belonging to Mr. *Evelyn*'s Family, they met with a *Skeleton* which was 9 Foot and 3 Inches long, as the Worthy Mr. *John Evelyn* had it atteſted by an ancient and underſtanding Man then preſent, (who accurately meaſured it, and mark'd the Length of the Pole) with other Work-men who affirm the ſame. They found it lying in full Length, between two Boards of the Coffin; and ſo meaſured it before they had diſcompos'd the Bones. But trying to take it out, it all fell to pieces; for which reaſon they flung it among the reſt of the Rubbiſh, after they had ſeparately meaſur'd ſeveral of the more ſolid Bones. *vid.* Gibſon's *Edit. of* Camb. Brit. *p.* 164.

CHAP. VI.

Of Plants.

NEXT *Inanimate* things, I proceed to ſuch as have *Life;* amongſt which, firſt of thoſe that hold the loweſt place, that exerciſe the moſt *univerſal,* and therefore *inferior* Faculties, ſuch as *Herbs, Shrubs, Trees,* all which are contained under the general name of *Plants:* But of theſe I intend not a compleat *Catalogue* (that being a Subject of it ſelf large enough for a *Volume*) but only a ſhort Account.

1. Of the *Indigenous Plants* of the *County,* which yet either
   1. Are not deſcribed by any *Author* that we know of, or
   2. Have not been noted by the Ingenious Mr. *Ray,* in his excellent *Catalogue,* to be of *Engliſh* natural Growth; or
   3. Have indeed been noted, which yet remaining dubious, either as to the certainty of their *Deſcription,* or *ſpecifical Difference,* are cleared in this *County.*
2. Of the extraordinary *Accidents* of well known *Plants.*
3. Of the *unuſual Plants* now cultivated in the Fields, under which Head ſomewhat of the *Husbandry* of the *Country.*

According to which *Method* I ſhall treat of all the three fore-mentioned *Species* of *Plants; viz. Herbs, Shrubs, Trees,* ſo far forth as each of them will come up to it. And firſt of thoſe ſtiled *herbaceous Plants.*

2. By which I underſtand all and only thoſe that are made up of a *ſucculent* and *carnous* Subſtance, that never in any part will become *lignous,* (or hardly any of them retain it all Winter) as *Shrubs* and *Trees* do: of which thoſe that are *indigenous,* and not deſcribed by any *Author* that we know of, are theſe that follow.

3. *Viola Martia hirſuta major inodora.* Which large *Violet* from a fibrous Root ſendeth forth many Leaves, each upon his own Foot-ſtalk, neither creeping as the common *March,* nor branched as the common *Dog-Violet;* its Leaves

Leaves and Stalks are all *hairy*, eſpecially on the back-ſide; they are alſo broader, larger, and more *pointed* than the ordinary *March Violets*, which occaſioned (as ſome think) the Ingenious Dr. *Merret* to note it by the name of *Viola Trachelii folio* [c], but that certainly muſt be ſome different kind, the Leaves of ours being all *invecked*, as in *Tab.* 9. *Fig.* 1. whereas the *Trachelia* are all *indented*: Amongſt the Leaves grow large *Flowers*, upon Foot-ſtalks (as other *Violets*) of a pale Blue Colour, with White *Lines* or *Rays* iſſuing from the middle of them, but wholly without *Scent*. They flower in *March* and *April*, and are commonly, but abuſively ſold to the *Shops* amongſt other *Violets*, they not being ſo good for any of thoſe Uſes the *Apothecary*'s put them to, as other *Violets* are. They grow plentifully in *Magdalene College* Coppice, on *Shotover* Hill, *Stow-Wood*, and many other *places*.

4. *Viola paluſtris rotundifolia*. From the Root of this Plant, which is *white*, and at equal Diſtances *knotted* (whence only it ſends forth its *Fibers*, not downward, but *Horizontally*) ariſe 3 or 4 (ſometimes more) feeble ſmall *Stalks*, each bearing at its top only a round Leaf, as in *Tab.* 9. *Fig.* 2. Among which, about *April* come up the *Stalks* of the *Flowers*, Slender, like thoſe of the *Leaves*; the whole *Plant* being weak, and beholding to the neighbouring *ones* for its Support. The *Flowers* are ſmall and Blue, which being paſt, a long *Priſmatical Seed-veſſel* ſucceeds, opening its ſelf when ripe into three parts, and ſhewing a rank of brown *Seeds*, appended to each Angle by white *Nerves*: This is eaſily diſtinguiſhed from all other *Violets* by its native *place*, wherein 'tis ſuppoſed they will not grow; and by the Smallneſs of its *Flowers*, which are conſiderable *leſs* than any of the reſt; whereunto add the remarkable *roundneſs* of its Leaves, which are ſo far from drawing to *Points*, that the longeſt way of them is from ſide to ſide. *Cluſius* indeed ſeems to deſcribe a Plant like this, by the name of *Viola Alpina altera* [d], but makes its Flower as much *greater*, as ours is *leſs* than the common *one*; adding beſide, that it flowers about the latter end of *June*, a Month before which time the Seed of *ours* is ripe; which are Differences ſo irreconcilable, that we cannot but pronounce *ours* as diſtinct from *his*, as from any other *Violets* before deſcribed by *Authors*, whereof we have conſulted *moſt*, if not *all* the beſt. It grows ſparingly in the Boggs about

[c] *Pinax rer. Nat. Britan. p.* 125. [d] *Car. Cluſii Plant. Hiſt. cap.* 13.

Stow-Wood, and on the Banks of *Cherwell* between *Oxford* and *Water-Eaton*; but moſt plentifully at *Chilſwell* in *Berkſhire*, amongſt the moiſteſt Boggs.

5. *Juncellus omnium minimus capitulis Equiſeti.* This leaſt *Club-ruſh* from ſmall hairy Roots, riſeth no bigger than *Horſe-hair*, and not above three Inches high, bearing at the Top a little *Club*, as in the other *Club-ruſhes*, but proportionably leſſer, as in *Tab.* 9. *Fig.* 3. where alſo it may be obſerved, that the *Ruſh* riſes *ſingly* from the Root, and not *branched*, like the *Fluitans* mentioned by Mr. *Ray* [1], who had he ſeen this, would certainly have owned different *Species*'s of *Club-ruſhes*, which he ſeems ſo much to doubt. It grows in *Binſey-Common*, in the moiſt Ditches next the River *Iſis*.

6. *Geranium columbinum maximum foliis diſſectis.* Or the great jagged *Dove's-foot Crane's-bill*, differs from the jagged *ones* of other *Writers*, in that it is jagged at the firſt coming up, whereas all others are whole then; its Leaves are alſo ſtanding on *long* Foot-ſtalks, and much greater than thoſe of any other *Dove's-feet*; from the Middle of which there riſe up *great joynted* Stalks, near the Bigneſs of a *Man*'s Finger, branched, and almoſt ſtanding upright a *Yard* in height: At the *Joynts*, which are largely knotted, are alſo large jagged Leaves, which at the Top grow very thick, amongſt which ſtand the Flowers upon ſhort Foot-ſtalks, as in *Tab.* 9. *Fig.* 4. of a bright and Red Colour, whereas the others are of a Bluiſh Purple; the *Seeds* being like thoſe of other *Dove's-feet*. This grows in Hedges about *Marſton*, and on that part of *Botley-Cauſey* next *Oxford*, in great Plenty.

7. *Pentaphyllum reptans alatum foliis profundius ſerratis.* This creeping *Plant* in all reſpects grows like the common *Cinque-foil*, but that at the Bottom ſome Leaves are found round and undivided like *Alchimilla*, and others dividing themſelves into *five*, are jagged but half way: As it increaſes in Growth, the Number of Leaves oftentimes decreaſe, bearing four, three, two, and at the Top, one; all which, have two little Leaves or Ears at the Bottom of the Foot-ſtalk, like *Tormentill*: The Flowers are of the Bigneſs and Colour of common *Cinque-foil*, but generally made up of *four* Leaves, as in *Tab.* 9. *Fig.* 5. and but very rarely to be found with five. It grows in the Edges of the *Corn-fields* between *Hockley*, and the Woods under *Shotover* Hill.

[1] *In Catalog. Plantar.* Angl.

8. *Oro-*

8. *Orobanche Verbaſculi odore.* The Root of this *Plant* is *ſcaly* and obtuſe, to which are appended a Bundle of complicated *Fibers*, like thoſe of *Nidus avis*, whence it riſeth up with a ſoft round very brittle *Stalk*, ſeldom eight Inches high, ſet with thin, ſmall, ſhort ſcaly Leaves like *Skins*, growing cloſe to it: at, or very near the Top of which *Stalk*, grows ſometimes eight or ten ſmall *Flowers*, altogether different from thoſe of the common *Orobanche*, each conſiſting of four pretty large *Leaves*, within which are contained as many leſſer, as in *Tab.* 9. *Fig.* 6. About the *Seed-veſſel* (which is round at the Bottom, with a narrow Neck, and a Hole at the Top ſomewhat reſembling a *Child*'s Sucking-bottle, as in *Fig.* 6. *a*) ſtand ſmall *Chives* with purpliſh Tops, as in *Fig.* 6. *b*. The whole *Herb*, *Flowers*, *Stalks* and *Leaves*, are at the firſt flowering of a Whitiſh Yellow, or Straw-colour, and being broken or bruiſed, ſmell like the Root of a *Primroſe*. It grows at the Bottoms of Trees in the Woods near *Stoken-Church*, and we find it mention'd in ſome MS. Notes of the famous Mr. *Goodyer*.

9. *Saxifraga* Anglica *annua Alſine folio*. This ſmall annual *Saxifrage* from a ſmall *Fibrous* Root, ſpreadeth its *trailing-joynted* Stalks about an Inch or two from it, at each *Joynt* come forth ſmall narrow Leaves as in the other *Chickweed-break Stone*, and from the upper *Joynts* toward the End of the *Stalks*, come ſmall *herbaceous* Flowers made up of *four* Leaves, which prove the caſe for the ſmall included *Seed-veſſel*, as in *Tab.* 9. *Fig.* 7. This *Plant* differs from the common *one*, which is of a *light freſh* Green, *perennial*, and ſometimes *roots* again at its *Joynts*; in that its Stalks and Leaves are of a *browniſh* Green Colour, the *Plant annual* and never *reptant*: it grows plentifully in the Walks of *Baliol-College* Gardens, and on the Fallow-fields about *Heddington* and *Cowley*, and many other places.

10. To which perhaps I might add two different *Lychnis*'s from the *Sylveſtris flore albo Gerardi*, obſerved this Year by *Richard Stapley* M. B. one whereof bears a White Flower ſomewhat leſs than the common, yet at the *Center* having another little *flowery Circle*, in the Middle of which appear ſeveral fine *ſtamina*, with Yellow longiſh *Apices*, whereas the reclining *ſtamina* of the common *Campion* have no *Apices* at all; the other alſo bears a White Flower without that *flowery Circle*, but has *ſtamina* crowned with roundiſh Purple *Apices*, with the Duſt whereof the *Flower* it ſelf is com-

commonly *foiled.* But in the firſt of theſe the *Seed-veſſel* not appearing at all, and in the ſecond withering away with the *Flower:* We are not ſo bold as to make them diſtinct *Species*'s, not knowing as yet whence they ſhould be propagated. Theſe were found near *Holy-Well* in the Suburbs of *Oxford,* and grow alſo in the Corn-fields about *New-parks,* and as we ſuppoſe in moſt parts of *England. Sed de hoc quære.*

11. Beſide theſe, there is alſo another, of which *Authors* write ſo obſcurely, that we cannot poſitively ſay whether deſcribed or no: However, we have ventured to call it *Atriplex vulgaris ſinuata ſpicata,* it not being like the *Pes anſerinus alter ſive ramoſior* of *John Bauhin,* mentioned by Mr. *Ray* [m], in that it bears its *Seeds* in *Buttons* cloſe to the Stalks, like the *Fragifera.* This grows equally common on Dung-hills with the *ſinuata major,* amongſt which we ſuppoſe it has hitherto lay hid.

12. As for the *Plants* deſcribed by other *Authors,* but not noted by Mr. *Ray* to be of *Engliſh* Growth, we find only theſe in the *County* of *Oxford.* 1. *Clematis Daphnoides ſive pervinca major,* in the High-ways between *Woolvercot* and *Tarnton,* and in ſeveral *Hedges* thereabout. 2. *Lagopus major vulgaris Parkinſoni,* in *Stow-Wood* plentifully, and ſeveral other *places.* 3. *Oenanthe aquatica minor* Park. *ſive juncus odoratus Cordi,* in the Ditches about *Medley* and *Binſey-Common,* and almoſt every where about *Oxford.*

13. Whereunto add ſome *others* indeed noted by Mr. *Ray,* but left in doubt whether *deſcribed,* or *different* from one another. Such are the *Helleborine flore albo* mentioned in his *Appendix* [n] to grow in the Woods near *Stoken-Church,* not far from the Road leading from *London* to *Oxford,* which becauſe *he* had not ſeen either Flowering, or Green, modeſtly refuſed to determin whether deſcribed or no: But *we* having had time and Curioſity of viewing it often in Flower, find it to be the *Helleborine flore albo* of *Gerard* and *Tabernæmontanus: Epipactis anguſtifolia* of *Beſler,* in his *Hortus Eyſtettenſis* [o]: *Aliſma quorundam Cordi* [p], and *Aliſma Cymbaleanthemon Thalii* [q]. Which *Authors,* and others, we have diligently ſearched, and by comparing them together, find the *Plant* to agree with each *Figure,* as well as they could do one with another,

[m] *In Catalog. Plant.* Angl. [n] *In Appendice, p.* 339. [o] Jac. Theod. *Tabernæmont. part.* 2. *p.* 400. [p] *Horti Eyſtett. Plant. Vernal. Ord.* 9. *fol.* 5. [q] Valer. Cordi *Hiſt. de Plant. lib.* 2. *cap.* 107.

had

had they (as indeed they commonly are) been Printed from one Plate.

14. The *Plants* which he doubts whether *ſpecifically diſtinct*, yet found *ſo* in *Oxford-ſhire*, are alſo *Helleborine*'s; the one his *Helleborine flore atro-rubente*, and the other *Helleborine latifolia montana*[r], both plentifully growing on *Stoken-Church* Hills: Whereof the *former* has ſmall *narrow* Leaves, ſomewhat like the *Paluſtris*, and growing *thicker* on the Stalk; whereas thoſe of the *latter* are *broad* and much thinner, the *one* alſo flowering a full *Month* after the *other*, which we take to be diſtinguiſhing *Characters* enough, though not ſo ſignally differing in the Flowers as Mr. *Ray* owns his to do; our *latifolia montana* coming nearer to that of *Gerard*, than of *him* or *Dodonæus*, having Purple Flowers, but as deep or deeper than thoſe of the *Helleborine flore atro-rubente*.

15. Of *Accidents* that are incident to *Herbaceous Plants*, beſide what I have ſeen amongſt *Forreigners* in Gardens, I have met alſo with ſome amongſt the *Natives* of *Oxford-ſhire*: which I gueſs may happen to *them* (as likewiſe to all *others*) moſt times through *exceſs*, or *defect* in their *Nouriſhment*. Thus have I ſeen the *Stalks* of *Dyer's-weed* and *Succory*, from a round near the *Root*, ſpread themſelves upward into a *broad flat* Stalk, as if there were ſeveral of them *faſciated* together, occaſioned I ſuppoſe by reaſon of the aſcent of *too much* Nouriſhment for one Stalk, and yet not *enough* for two. The *Faſcination* (if I may be allowed to coyn ſuch a Word) being as it were an Attempt for *two* Stalks, which upon the aſcent of ſufficient *Sap*, is ſometimes accompliſh'd, the flat Stalk then dividing into *two*, as I obſerved it this Summer in a *Draba lutea ſiliquis ſtricti ſſimis*, and ſeveral other *Plants* in the Gardens.

16. Which *Accident* of *Plants* the *German Virtuoſi* think only to happen after hard and late *Winters*[s], by reaſon whereof indeed the *Sap* being reſtrained ſomewhat longer than ordinary, upon ſudden Thaws, may probably be ſent up more *forcibly* and *together*, and ſo produce theſe *faſciated* Stalks; whereas the *natural* and *graduated* Aſcent would have produced them but ſingle. Yet Experience has taught us in the Year 1676. that ſuch Productions muſt by no means be thus reſtrained; the *Winter* preceding, in

[r] *In Catalog. Plant. Angl.* [s] *Miſcellan. curioſa Med. Phyſ. Acad. Nat. Curioſorum, An.* 1. *Obſerv.* 102.

Anno

Anno 1675. being one of the mildeſt ever known in *England*, and yet *faſciated Plants* as frequent as ever.

17. Beſide *thoſe*, we have obſerved ſome *others* here curiouſly ſtriped; ſome of them *Yellow*, as *Dens Leonis Caryophyllata*, *Urtica urens*, &c. others *white*, as *Papaver ſpumium*, *Plantago quinque nervia*, *Cruciata*, *Calamintha aquatica*, &c. *Others* again differing from the reſt of their kind, not in *Leaves*, but Colour of their *Flowers*; ſuch are *Lamium rubrum*, *Lyſimachia ſiliquoſa magno flore*, *Trachelium minus*, *Gentianella fugax minor*, *Anagallis terreſtris*, *& aquatica ſive Becabunga*, *cum multis aliis*, all with *white* Flowers; and *Hyacinths*, we have ſometimes found with *red*, and *white* Flowers: All which I gueſs *accidentally* accrew to theſe *Plants* (their *Species* having Flowers of different Colours) through *Defect*, or ſome *Interception* of their Nouriſhment, which occaſion *Diſeaſes*, and ſuch *Diſcolorations* both in their Leaves and Flowers.

18. That this is true of all *ſtriped Plants*, is manifeſt, in that ſuch *Diſcolorations* may be procured by *artificial* Subſtraction of the Nouriſhment, *viz.* by applying *Lime*, or other hot dry Matter to their *Roots*; which drying up, or otherwiſe rendring the *Nouriſhment* unfit, will thus make the *Plants ſtriped*; as the Learned Dr. *Moriſon* informs us he obſerved it in *Dulcamara* creeping through *Lime* and other Rubbiſh of Buildings, at the Duke of *Orleans* his Houſe at *Blois*, whence not only *ours*, but moſt other Gardens of *Europe* have ſince been ſupplyed with the *white ſtriped Dulcamara*.

19. Moreover, that ſuch *Stripings* are nothing but *Diſeaſe*, appears plainly in that moſt, if not all *ſtriped Plants*, are ſomewhat *deformed* and *imperfect* in their Leaves; and though *ſtriped* very lively in the Beginning of the *Spring*, will many of them recover, in ſome meaſure at leaſt, before *Autumn*, and ſome of them have their Leaves at length as *green*, as the reſt of the healthy Plants of their *kind*; Which I take to be manifeſt Arguments of their *Sickneſs*, and ſuch *Stripings* to be only *Diſcolorations*, and no Ornaments of Perfection, though Ornaments of our *Gardens*.

20. To which if it be objected, that 'tis otherwiſe in the *Flowers* of all the *Plants* above-mentioned, which though of different *Colours* from the reſt of their *Species*, continue ſo ſtill from Year to Year, not altering in the *Autumn* from what they were in the *Spring*: It muſt be anſwer'd, that notwithſtanding what is urged to be true, yet ſuch Conſtancy

ſtancy will not warrant them of a different *Species*, ſince no *Seed* they produce will bring more of their *kind*, but only ſuch whoſe *Flowers* will be of the ordinary *Colour*; which is ſo great an Imperfection, that we cannot but ſuſpect theſe alſo to be *diſeaſed*, and to have their Variations only from thence.

21. Though it muſt be confeſt, that it is worthy Notice too, that many of theſe *Plants* ſeem as ſtrong, and flouriſh as well as any *others*, and produce perhaps their Seed as perfect as *any*: Why then ſhould they be numbred amongſt diſeaſed *Plants*, any more than a *Red-hair'd* Man ſhould be accounted ſo in *England*, or a *Black-hair'd* one in *Denmark* (where I am informed there are ſo few, that they commonly paint *Judas* with *Black-Hair* as we do with *Red*) is a Difficulty, I gueſs, not eaſily avoided; eſpecially ſince the Difference of *Colours* in *Flowers* may be occaſioned by the different Textures of the Stalks of ſome certain *Plants*, as it is in the Hair and Feathers of *Animals*, alſo of different Colours from the reſt of their *Species*, as ſhall be fully made out in the following *Chapter*. It may therefore perhaps be more ſafely concluded, that the different *Colorations* at leaſt of ſome of theſe *Flowers*, may indeed be *Accidents*, but no *Accidents* of Diſeaſe or Imperfection.

22. Which is all I have met with concerning wild *herbaceous Plants*, and the *Accidents* attending *them* remarkable in this *County*, in the Relation whereof I have been all along ſo careful of not impoſing on the *World*, that I have mentioned nothing, except in the *Philoſophical* part, wherein I have not conſulted, and had the Approbation of ſome of the moſt Knowing in the *Faculty*, ſuch as the Reverend *William Brown* B. D. and Fellow of *Magdalene College Oxon*, Dr. *Edward Tyſon*, *John Baniſter* M. A. *Richard Stapley* B. M. and Mr. *Jacob Bobart*, all Eminent *Botaniſts*.

23. Of *unuſual Plants* now cultivated in the *Fields*, to paſs by the ordinary Red and White *Lammas-Wheats*, Black and White *Ryes*, the common *Barley*, *Peaſe*, and *Oats*, there are ſeveral worthy Notice now ſown in this *County*, that have been ſcarce ever heard of, much leſs uſed in ſome *others*: Where by the way let it be noted, that the word [*unuſual*] is not ſo much to be applied to *this*, as other *Counties*, and that in theſe Matters of *Husbandry*, I rather write for the Information of *Strangers*, than the *Inhabitants* of *Oxford-ſhire*, as I muſt hereafter in other *Coun-*

ties for the Information of *this*: There being many things in each *County* thought common there and unworthy Notice, that perhaps in ſome *others* will appear ſo ſtrange, that they will ſcarcely be believed. And ſuch are,

24. *Triticum ſpica mutica rubrum, caule item rubro*; Red-ſtalkt *Wheat* (miſtaken by many for Red *Lammas*) ſo commonly called from the Redneſs of its *Straw*, eſpecially near the *joynts* when the *Corn* begins to turn; which Redneſs yet will vaniſh for the moſt part away, when it is full Ripe. This *Corn*, as I was inform'd, was firſt propagated from ſome few *Ears* of it, pickt out of many *Acres*, by one *Pepart* near *Dunſtable*, about Fifty Years ago, which ſowed by it ſelf, till it amounted to a Quantity, and then proving *Marketable*, is now become one of the commoneſt *Grains* of this *County*, eſpecially about *Oxford*; which yet becauſe not known in many other *places*, I thought fit at leaſt to mention it, and the rather becauſe of its ſeldom or never *ſmutting*, a conveniency that pleaſes the *Baker* and *Husbandman* both; and yet it ſeems 'tis not now ſown about *Thame* and *Watlington* ſo much as formerly, becauſe it brings not ſo certain, nor ſo good a burthen as

25. *Triticum ſpica mutica albicante, granis rufeſcentibus*, White Eared Red *Wheat*, White *Cone*, or mixt *Lammas*, which latter Name I take to be as agreeable as any, becauſe of its participating both of the White and Red *Lammas*, having a White *Ear* and Red *Grain*; whereas the White *Lammas* hath both *Ears* and *Grain* White, and the Red *Lammas* both Red: Nor has this, as I was told, been long in *Oxford-ſhire*, it being firſt advanced like the former from ſome few *Ears*, and at laſt being found to yield conſiderably better than moſt other *Wheat*, *viz.* ſometimes *twenty* for *one*, it is now become the moſt eligible *Corn* all along the *Vale* under the *Chiltern* Hills, and in far better eſteem than the Red-ſtalk'd *Wheat*, or,

26. *Triticum ſpica ariſtata glumis hirſutis*, the long *Cone Wheat*, which yet is the beſt of any, to be ſown in *ranck clay* Land, its *Stalks* being reedy and not ſubject to lodging; and by *Hedges* ſides, becauſe the Birds cannot eat it; for which reaſon alſo it muſt be good in *Incloſures*, beſides its being the leaſt ſubject of any *Corn* yet known, to the inconveniency of *Mildews*: This *ſort* alſo yields extremely well, but its *Flower* being courſe and not pleaſing the *Bakers*, it is ſeldom ſown but under the mentioned circumſtances, except ſometimes mixt amongſt the other *Wheats*.

27. *Tri-*

27. *Triticum multiplex, ſive ſpica multiplici*, double Ear'd *Wheat*, ſo named for that it has divers *ſmall Ears* iſſuing out of the ſides of the *greater*, and is ſown about *Biſſiter* and *Weſton on the Green*, but it not proving agreeable to the *Soils* thereabout, nor advantageous to the *Husbandman*, it is almoſt quite diſuſed, though I hear it ſucceeds better about *Fritwell* and *Souldern*. They ſow alſo a Wheat about *Weſton on the Green*, which from the hanging of its *Ear* they call *Pendule* Wheat, but ſuſpecting that it differs in nothing from *Cone*, it being *ariſtis munitum*, and *glumis hirſutis*, I forbear as yet to pronounce it any *other*, though I am told that the *Pendule* has a redder and more ſlender, and *Cone* a whiter and fuller *Ear*; and that *Cone* endures longer, and *Pendule* but a very ſhort time here, it yielding for the firſt Year ſometimes *twenty* for *one*, and within two Years after dwindling away, ſo as not to be worth ſowing; which time expiring, they ſupply themſelves again out of *Berk-ſhire*, at *Abington Market*, whereof more (if I find it to be a different *kind*) when I come into that *County*.

28. All which, 'tis true, in *Oxford-ſhire* are ſo commonly ſown, that they cannot indeed in this reſpect be ſtiled *unuſual*: but becauſe ſcarce ever heard of in the *South-Eaſt* parts of *England*, I thought it convenient at leaſt to hint *them*. And ſo likewiſe our

29. *Hordeum diſtichum præcox*, or Rathe-ripe *Barly*, deſervedly ſo called from its Yearly Ripening, it having been ſometimes ſown and returned to the *Barn* again in two *Months* time, and often in nine or ten *Weeks*. This *Barly*, 'tis true, is no Native of *Oxford-ſhire*, only much ſown here, it being all had immediatly or mediatly from *Patney* in *Wilt-ſhire*, whence by ſome 'tis alſo called *Patney Barly*: Where the Soil (as I am told) is of ſo peculiar a Quality, that what-ever other *Barly* is ſown there, it is turned forthwith into this we call *Rathe-ripe*; a Feat, which they ſay, no other *Land* will perform. But we are told by Dr. *Childrey* [t], that in the *Weſtern* parts of *Cornwall*, they ſow a ſort of *Barly* near the Sea-ſide, which they carry to *Mill* in eight or nine *Weeks* time after they have ſowed it. However, what we have here comes all from *Patney*, but is not ſo agreeable to our *Oxford-ſhire* Soil immediatly from thence, as when it has been ſown elſewhere twice or thrice; after which, it endures not above three or four *Years*, but

[t] *Britannia Baconica in Cornwall.*

degenerates again into common *Barly*. Its *Conveniency* notwithſtanding is very Conſiderable in wet and backward *Springs*, and moiſt *Autumns*, when many other *Countries* loſe their *Seaſons*, and ſome of the more *Northern ones* perhaps their *Crop*, the common *Barly* there never coming to be *ripe*, whereas this may be ſown at the latter end of *May*, and will come to be *ripe* in the worſt of *Summers*. This I heard of firſt at *Gaunt-Houſe*, (the Paternal Eſtate of the *Right Reverend Father in God*, John *late Lord Biſhop of* Oxon, one of the *Nobleſt Encouragers* of this *Deſign*) but met with it after all over the *County*, it being generally approved of by all ſorts of *Husband-men*. And this is the only *Barly* ſown in this County unknown in ſome others.

30. But of *Peaſe* there are many *ſorts* little thought of *Southward*, that poſſibly were they known, might prove as agreeable to the *Soils* there, as here, and as advantageous to the *Husband-man*. Such are the *Peaſe* called *Henly-Grey*, and another ſort called *Red-ſhanks*, for freſh *new-broken* Land; the *Vale-grey* for *ſtrong*; and *Hampſhire-Kids* for *new-chalkt* Land; the ſmall *Rathe-ripes*, for *poor* and *gravelly*; and the *Cotſwold* Peaſe for *ſour ground*. And of *Vetches*; in deep clay Lands they ſow the *Gore* and *Pebble-Vetch*; in cold moiſt grounds the *rathe-ripe Vetch*; and *Dills* or *Lentills*, in poor *ſtone-braſh* Land, which are a good *Podware* for *Cattle*, and ſown in many parts of the *County*.

31. As for *Beans* and *Oats*, they ſow only the common that are every where elſe; but for *Graſſes*, the uſual Name for any *Herbage* ſown for Cattle, eſpecially if *perennial* (to paſs by the *trifolium purpureum majus ſive ſativum*, *Clover-graſs*; and *Onobrychis ſpicata flore purpureo, ſemine echinato*, commonly called *Sainct-foin*, or *Everlaſting-graſs*; but, according to Dr. *Moriſon*, the true *Lucern*, now every where known, and therefore nothing concerning the Qualities and Advantages of *it*.) They have lately ſown *Ray-graſs*, or the *Gramen Loliaceum*, by which they improve any *cold*, *ſour*, *clay-weeping* ground, for which it is beſt, but good alſo for dryer *up-land* grounds, eſpecially *light ſtony*, or *ſandy* Land, which is unfit for *Sainct-foin*.

32. It was firſt ſown (as I was told) in the *Chiltern* parts of *Oxford-ſhire*, and ſince brought nearer *Oxford* by one Mr. *Euſtace*, an Ingenious Husband-man of *Iſlip*, who though at firſt laught at, has been ſince followed even by *thoſe* very Perſons that ſcorn'd his *Experiment*, it having Pre-

Precedence of all other *Graſſes*, in that it takes almoſt in all ſorts of *poor* Land, endures the *Drought* of *Summer* beſt, and in the *Spring* is the earlieſt Graſs of any, and cannot at that time be over-ſtock'd; its being kept down making it ſweeter, and better beloved by *Cattle* than any other Graſs: Nay, ſometimes they have been known to leave *Meddow-Hay* to feed on *this*: but of all other *Cattle* it is beſt for *Horſes*, it being hard Hay; and for *Sheep*, if unſound, it having been known by Experience to have work'd good *Cures* on *them*, and in other reſpects the beſt *Winter* Graſs that grows.

33. As to the *Manure* of it, ſome ſow but two *Buſhels* on the *Statute* Acre, but 'tis beſt to ſow three, mixt with the *trifolium agrarium Dodonæi*, called *Melilot-trefoil*, and ſometimes *Non-ſuch*, becauſe of it ſelf it is but a thin ſpiry *Graſs*, and will not be of any Bulk the firſt Year, unleſs thickned by the *Trefoil*, which failing by Degrees, the *Ray* or *Bennet-graſs* (ſo ſome alſo call it) thickens upon it, and laſts for ever. Of *Ray-graſs* and *Trefoil* thus mix'd together, one at *Iſlip* but lately had ſo advantageous a *Crop*, that from four *Statute* Acres, worth not above *forty Shillings per annum*; beſide the keeping ſix or eight *Cattle* till *Holy-Thurſday*, and the feeding all the *Winter* following, had twenty Quarters of Seed worth twenty Pounds, and fourteen Loads of *Fodder*, enough to winter five or ſix *Cattle*.

34. The *fœnum Burgundiacum cæruleum L' Obelii*, or *Medica legitima Cluſii & Dodonæi*, commonly called *Lucern*; but by the Learned Dr. *Moriſon* ſaid to be the true *Sainct-foin*, is alſo ſown here, and found to agree well enough with a *rich moiſt* ground, but better by much in a *warm* and *dry* Soil. This ſtands recommended for an excellent *Fodder* both by Men and Beaſts, eſpecially *Horſes*, which are purged, and made fat with it in the *Spring-time* in 8 or 10 Days. But no more of this, or any other *Graſſes*, they having all (but *Ray-graſs*) been already deſcribed.

35. But beſide Graſſes, there have ſome other *Plants* been cultivated here of no mean uſe, ſuch as *Cnicus, ſive Carthamus ſativus*, manured *baſtard Saffron*, ſometimes called *Safflore*, for dying of *Scarlets*; and therefore by ſome called alſo the *Scarlet-flower*, whereof there was once a conſiderable Quantity ſown at *North-Aſton* by Colonel *Vernon*, the Seeds being planted in Rows about a Foot diſtant, for the more convenient howing and keeping it clean from *Weeds*: In theſe Rows *it* riſes with a ſtrong round Stalk three

three or four Foot high, branching *it ſelf* to the Top, where it bears a great open ſcaly Head, out of which *it* thruſts forth many Gold Yellow Threds of a moſt *orient* and ſhining Colour, which they gather every Day as faſt as they ripen, and dry them well; which done it is fit for Sale, and Dying of *Scarlet*.

36. And about *Bampton* and *Clanfield*, they make ſome Profit of Sowing *Carum ſive Careum*, or the *Carui of the Shops*, commonly called *Caruwaies*, which they ſow in *March* or *April*, as they do *Parſly*; the firſt Year (it ſeems) it bears no Seed, but the next it ſeeds and ſhatters, and ſo will hold ſix or ſeven Years without new ſowing, or any other Care or Trouble, beſide keeping it from Weeds: the Encouragement they have to ſow it, is the Value put on it; one Pound of this being eſteemed by the *Grocers*, worth almoſt two of that which they have from *London*.

37. And this is all I have met with concerning *cultivated Plants* worthy taking notice of in this County, but that like the wild *indigenous ones*, theſe have ſometimes Accidents that attend them too: for ſuch, and no other, were the *two Ears* of *Wheat* branched from one Stalk, and *ſix Ears* of *Barly* from another, found at *Fulbrook* near *Burford*, given me by Mr. *Jourden*, ſince deceaſed. Nor have I more to add concerning them, but that I find few that I have mentioned to be noted by Mr. *Ray*.

38. Next *Herbaceous Plants*, I proceed to the *Shrubs*, amongſt which I met with but little extraordinary, only the *Haw-thorn* at *Bampton*, in the *Bowling-green Hedge*, bearing *White Berries* or *Haws*, which indeed I take to be a great *Curioſity*: for though in Flowers and Animals, *White* be eſteemed by ſome a *penurious* Colour, and a certain Indication of a Scarcity of *Nouriſhment*: Whence 'tis, ſays my Lord *Verulam*[u], that Blue *Violets* and other *Flowers*, if they be ſtarved, turn *Pale* and *White*; *Birds* and *Horſes* by Age turn *White*; and the hoary Hairs of *Men* come by the ſame reaſon. And though among *Fruits* the *White* for the moſt part argues but a mean *Concoction*, they being generally a *flaſhy over-watry* Taſte, as *Pear-plums*, the *White-harveſt Plum*, *White Bulleis*, *&c*[w]. and divers ſorts of *Pears* and *Apples* of that Colour. Yet in *Berries* the caſe ſeems to be quite different, as we ſee in *Goosberries*, *Grapes*, *Strawberries*, *Raſps*, whereof the *White* are by much the more delicate, and have the better *Flavor*; which if true,

[u] *Nat. Hiſt. Cent.* 1. *numb.* 93. [w] Here except the *Pardegwin* and White *Dameſin*.

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in the whole *Species* of *Berry-bearing* Plants (as in Probability it may) we have reaſon to conclude that the *Berries* of this *Thorn* are not accidentally *White*, through *Defect* or *Diſeaſe* as in ſome other Plants, but that they are an Argument of its Perfection, and that the Thorn it ſelf is of a quite different *Species* from all known before, and may juſtly challenge the Name of *Oxyacanthus baccis albis*. Theſe Berries, 'tis true, I ſaw not my ſelf, not being there in time of Year for them, but being certified of the Truth of it by the common Voice of the Pariſh, and particularly by the Worſhipful *Thomas Hoard* Eſq; who firſt told me of it, and the Reverend Mr. *Philips* late Arch-Deacon of *Salop*, and one of the three *Vicars* there; (Men of great Ingenuity and undoubted Veracity) I had no reaſon to queſtion the Certainty of the thing.

39. And hither, I think, may be referred the *Glaſtonbury Thorn*, in the Park and Gardens of the Right Honourable the Lord *Norreys*, that conſtantly buds, and ſometimes bloſſoms at or near *Chriſtmaſs*: Whether this be a Plant originally of *Oxford-ſhire*, or brought hither from beyond Seas, or a Graft of the old Stock of *Glaſtonbury*, is not eaſy to determin. But thus much may be ſaid in behalf of *Oxford-ſhire*, that there is one of them here ſo old, that it is now dying, and that if ever it were tranſplanted hither, it is far beyond the Memory of *Men*.

40. As for the excellent and peculiar Quality that it hath, ſome take it as a miraculous Remembrance of the Birth of *CHRIST*, firſt planted by *Joſeph* of *Arimathea*; Others only eſteem it as an earlier ſort of *Thorn* peculiar to *England*: And others again are of Opinion, that it is originally a Forreigner of ſome of the *Southern* Countries, and ſo hardy a Plant, that it ſtill keeps its time of bloſſoming (which in its own *Country* might be about the End of *December*) though removed hither into a much colder *Climate*. Whether of theſe is moſt probable, I ſhall not determin, but leave every *Reader* beſt to pleaſe himſelf; and whatever more can be ſaid of it, I ſhall reſerve till I come into *Somerſet-ſhire*, where it is in greateſt Reputation, and has been moſt obſerved.

41. Whereunto perhaps may be added a kind of *Roſa Canina*, which we have ventured to ſtile, *Humilior fructu rotundiori*, for that it wants much of the Height and Strength of the common *one*, and has round *Leaves*, and the *Hips* compreſſed at the top, and Branches thick ſet with

with ſmall *Prickles* between the great *ones;* whereas the common one has both *Leaves* and *Hips* long and pointed, and only a larger ſort of *Prickles* ſet at ſome diſtance: But whether this be not the *Roſa ſylveſtris folio glabro, flore plane albo,* of *John Bauhin,* to which we find it moſt agreeable of any deſcribed *, we dare not pronounce; and therefore have not ventured to give it any *Draught,* but have left it to further Enquiry, which that all Men may readily make, they may find it plentifully in *Magdalene College* Water-walks; in the way up *Heddington* Hill; and in many other places near about *Oxford.* And if judged at length to be that of *John Bauhin:* however, we find not noted by Mr. *Ray,* and therefore cannot be guilty of miſplacing it here.

42. Beſide this, I met with no *others* either dubious or omitted, but ſeveral of them diſeaſed, diſcoloured or ſtriped; ſuch a *Periclymenum ſylveſtre* (with the more accurate *Botaniſts,* rather a *ſubfrutex* than a *Shrub*) found at *Shotover* Hill; *Cornus femina* at *Waterſtock; Rubus major vulgaris,* in the Lane between *Finſtock* and *Fawler;* and *Sambucus vulgaris,* in the Hedges at *Cowley,* and near to *Oxford;* all which are ſtriped Yellow, but the *laſt* ſomewhat more remarkably than any of the former, the *Veins* only being Yellow, and all the *parenchymous* part of the Leaf remaining Green, ſo that the *Striping* repreſents as it were a *Network:* but this alſo growing out after ſome time like the reſt, muſt be reputed of the ſame kind, and to proceed from the ſame cauſe. Which is all I have found obſervable under the *Species* of *Shrubs,* except it be worthy Notice, that in the *Chiltern* part of *Oxford-ſhire* the *Rubus Idæus,* Framboiſe, or Raſp-berry Buſh, grows plentifully enough among the Woods and Hills: and the *Oxyacantha,* or Barberry-Buſh, between *Upper* and *Nether Kiddington.*

43. Thus having diſpatch'd both *Herbs* and *Shrubs,* I come at length to the *Trees,* whereof I have met with but *one* undeſcribed, and that a *narrow Leaved Elm,* which alſo being *ſmooth,* juſtly deſerves the name of *Ulmus folio Anguſto glabro,* wherein it differs not only from the *Ulmus minor* of *Parkinſon* and *Gerard,* but alſo from their *Ulmus folio glabro,* whoſe Leaves they ſay are nothing ſo large as the *Wych-Haſel,* but neareſt in Bigneſs, and exactly in the Figure of the *common Elm;* whereas ours are much *leſs,* and of a quite different *Figure;* being narrow, and having

* *Hiſt. Plant. lib.* 14. *cap.* 1.

a pe-

a peculiar kind of pointed Ending, as exactly expreſſed in *Tab.* 10. *Fig.* 1. Of thoſe there are plenty in the *Avenues* to the Houſe of the Honourable the Lady *Cope*, the Relict of the moſt Ingenious Sir *Anthony Cope* of *Hanwell*, where there is a whole Walk of them planted in order, beſide others that grow wild in the *Coppices* of the *Park*.

44. As for *Trees* either not noted, or any way doubted, I have met with none here: but for *Trees* remarkable for ſome unuſual Accident attending them, there are ſeveral worthy Notice. For of *Oaks*, though I found none ſo Prodigious as ſome mentioned by the Learned and Ingenious *John Evelyn* Eſq; in his Diſcourſe of *Forreſt Trees* [x]; yet there was one between *Nuneham-Courtney* and *Clifton*, that did ſpread from Boughs-End to Boughs-End 81 Foot, in Circumference, ſuppoſing the Boughs to ſpread uniformly, 243, ſhading 560 ſquare Yards of Ground; under which, allowing three ſquare Yards for a *Horſe* or other *Beaſt*, and two ſquare Feet for a *Man*, 186 of the *Former*, and 2420 of the *latter*, may be ſhelter'd from the Injuries either of *Sun* or *Rain*.

45. Yet there is an *Oak* at *Magdalene-College*, near the Gate of the *Water-walks*, that was ſomewhat bigger than that, whoſe Boughs did ſhoot out from the Bole fifteen or ſixteen Yards, which ſuppoſing they did ſpread of equal Length from the Trunk, like the *Rays* of a *Circle*; the Content of Ground on which it would drop, would be no leſs than 768 ſquare Yards, whereof allowing, as before, three ſquare Yards of Ground for a *Horſe* to ſtand on (three Yards long, and one Yard broad, ſeeming a competent Proportion) there might 256 *Horſes* ſtand under that *Tree*; or allowing as before, 2 ſquare Feet for a *Man*, 3456 *Men*.

46. And at *Ricot*, in the Park of the Right Honourable the Lord *Norreys*, there was an *Oak* ſomewhat bigger than either of the former, by the *Author* of *Dodona*'s *Grove*, called his *Robur Britannicum*, which extended its Branches from the Trunk of the *Tree* about eighteen Yards, ſo that the Diameter of its Circumference being 36 Yards, it takes within its *Area* 972 ſquare Yards; under the Umbrage of which *Tree*, upon the afore-mentioned Proportions, no leſs than 324 *Horſes*, or 4374 *Men*, may ſufficiently be ſhelter'd.

47. And theſe are the *Trees* moſt capacious without; ſome *others* there are that have given Shelter within the Hollow of their Trunks; Mr. *Evelyn* tells us of *one*, ſome-

[x] *A Diſcourſe of Forreſt Trees, chap.* 30.

where in *Glocester-ſhire*, that contains within its Bowels a pretty Wainſcoted Room, enlighten'd with Windows, and furniſhed with Seats, *&c.* which I ſuppoſe may have given Reception to many an honeſt *Gentleman.* Now though 'tis true we have none put to ſo Honourable a Uſe, yet the hollow *Oak* on *Kidlington* Green, for the neceſſary and publick Service it has done, ought perhaps to have Preference, though neither ſo great nor gaudy; it being frequently uſed before the Death of Judge *Morton* (before whoſe Houſe it ſtood) for the Impriſoning *Vagabonds* and other inferior *Malefactors*, for the ſpace of a Night or ſo, 'till they conveniently might be had to the *Goal* at *Oxford*: Of which, the Hollow was ſo large within, that it would receive eight or ten commodiouſly enough, the *Tree* without being 25 Foot round above the *Spurs*.

48. Juſt ſuch another *Priſon* as this, as we are informed by *Johan. Ferdinand Hertoda* [y], was made in *Moravia*, in the Trunk of a *Willow* 27 Foot round, in the Village of *Moravan*, by a certain Judge of that Country: The extravagant Growth of which *Tree*, he attributes to the Fertility of the whole *Marquiſate*; whereas I rather think (not but that the Country may be fertile enough) the extream rank Growth of that, and of all other *Plants* ſo exceeding the ordinary Courſe of *Nature*, ought rather to be imputed to ſome more peculiar Agreeableneſs of the reſpective Soils and *Plants*, than is ordinarily met with in any other places of the ſame *Country* where-ever it be.

49. On *Blechington* Green, near the *Angel* and *Crown* Inn, there was alſo an *Elm* of ſo capacious a hollow Trunk, that it once gave Reception to a poor great bellyed Woman (excluded all the Houſes in the *Pariſh*, to prevent her bringing a Charge on it) who was delivered in it of a Son, who grew a Luſty *Young-Man*, and lived, as they told me, at or near *Harwich*. And yet neither this *Elm*, nor the aforementioned *Oak*, are either of them ſo Big, but that they may be matched in many other places, in ſo much that I ſhould ſcarce have thought them worthy my Notice, had it not been for the *Strange Uſes* they were heretofore put to.

50. And thus I had immediately paſſed on to *Elms*, but that I am detained by a parcel of *ſubterraneous Oaks*, found ſome Years ſince at the Bottom of a Pond on *Binfield-heath* in the Pariſh of *Shiplake*, very firm and ſound, but quite

[y] *Tartaro maſtigis Moraviæ, part.* 1. *cap.* 17.

through

through to the Heart as Black as *Ebony*; cauſed I ſuppoſe by a *Vitriolic* Humour in the *Earth*, which joyning with *Oak*, the Parent of a ſort of *Galls*, might reaſonably enough produce ſuch an *Effect*, as we ſee they do always in the making of *Ink*: And that I am not miſtaken in this Conjecture, the Ditches by the Woods ſide between this and *Caverſham* will bear me witneſs, the Waters whereof, where they ſtand under *Oaks*, and receive their Droppings and Fall of their Leaves, being turned Blacker than any *Vitriolic ones* I have any where ſeen, except thoſe of Mr. *Tyrril* of *Oakley* in *Buckingham-ſhire*.

51. And *theſe* alſo no queſtion performed the ſame *Feat* to ſome Tuns of *Oak* found alſo under a *Pond*, belonging to the Worſhipful *Thomas Stonor* Eſq; of *Watlington-Park*, near *Blund's-Court*, in the Pariſh of *Rotherfield-Pypard*, which for the Benefit of the Soil, and other Conveniencies, being cleanſed in *July*, *Anno* 1675. the Work-men ſinking it a convenient Depth, came at laſt, as it proved, to the Top-Branches of an *Oak*: Relation whereof being made to the *Owner*, the worthy Mr. *Stonor*, a Perſon not only curious, but equally generous; he preſently gave order for a further Inquiſition, and accordingly employed an equal Number of *Men* to the Greatneſs of the Work, who ſinking a *Pit* about twenty Yards over, and about fifty or ſixty Foot deep, found many whole *Oaks*; whereof one ſtood upright perpendicular to the *Horizon*, the others lay obliquely, only one was inverted, the forked End downward: All of them *dyed* through of a black Hiew like *Ebony*, yet much of the Timber ſound enough, and fit for many uſes, ſeveral of the *Trees* being a Foot or fourteen Inches, and particularly one above three Foot *Diameter*, and all receiving a very good Poliſh; and therefore fitter for *Joyners* in-laid Works, than *Pales* to ſet about Cloſes, to which uſe that was put, which was found at *Binfield*.

52. Beſide the *Trees*, all along as they dug, they met with plenty of *Haſel-nuts* from within a Yard of the Surface to the Bottom of the *Pit*, which *Time*'s Iron Teeth had not yet crack'd; and that which amazed me moſt of all, I think they lay thicker than ever they grew: Some of which, as well as the *Oaks*, were at ſome places cover'd with a *Bluiſh Subſtance*, much of the Conſiſtence of the Flower of *Sulphur*, and not much unlike to the fineſt *Blue Starch*; which is the *Cæruleum nativum* before mentioned in this *Hiſtory*, *Chap.*3. *Sect.*18. The *Oaks* had none

of them any *Roots*, but plainly cut off at the *Kerf*, as is uſed in felling *Timber*: The Shells of the *Nuts* very firm without, but nothing remained within of the *Kernel*, but a ſhew of the dry outer Rind. And the *Blue Subſtance* not found only upon the *Nuts* and *Oaks*, but in any other ſmall Cavities of the *Earth*, diſperſedly here and there all over the *Pit*.

53. Moreover, there was found a ſort of *White Stone* diſperſed in like manner, in pieces ſometimes as big as ones Fiſt, in Colour ſomewhat like to White *Marble* or *Alabaſter*, but of a much different Texture. And near the Bottom of the Pit a large *Stag's-head*, with the *Brow-antliers*, as ſound as the *Beam* it ſelf, with two *Roman Urns*, both which were broken by the incurious Work-men.

54. How the *Timber* ſhould be thus *dyed* as Black as *Ebony*, I hope I have made no improbable Conjecture, nor is it liable, that I know of, to any Exception, unleſs to a *Quære*: Why the *Nuts* and *Stag's-head* were not dyed ſo too? To which it may be anſwered, That the Pores of the Shells being cloſer than the Wood, and neither the *Nuts* nor the *Horn* having any thing *Galliſh*, the *Vitriol* of the Earth could have no Power on them, whether it be wrought by Repugnancy or Combination, to work that Effect.

55. But how the *Timber* ſhould become thus buried both at *Binfield* and *Blund's-Court*? and at the latter how joyned in ſo ſtrange a Mixture, as *Haſel-nuts*, a *Stag's-head*, and *Urns*; and at ſome places only, with an *Alabaſtrine* kind of Subſtance? remains yet a Knot not ſo eaſily looſed. However ſince Attempts have ſometimes pleaſed, and it has always been acceptable *in magnis voluiſſe*, I ſhall adventure to propound my preſent thoughts; ſtill reſerving the Liberty to my *ſelf*, as well as *Reader*, of thinking otherwiſe when ſufficient grounds of change ſhall offer themſelves at any time hereafter.

56. Firſt then, as for the *Timber* dug at *Binfield-Heath*, 'tis likely that might be fell'd and buried there when *Societies* of *Men* (which I gueſs was not common till the Days of King *Alfred*) under ſome *Mean*, or *Lord Paramount*, firſt choſe to themſelves certain places of abode, and promoted *Agriculture*: which that they might the better do, they fell'd and buried the *Timber* which they could not well burn with the *under-wood*. Thus, as I have been informed by a very worthy Perſon, who had it from his aged *Father*, did our *Grand-fathers* ſerve their *Timber* in the in-

in-land parts of *Kent*, to make room for *Tillage*, digging a Trench by each *Tree* after it was fell'd, and ſo tumbling it in, its Sale not being worth the Portage, even there, ſo few Years ago. Much rather therefore might the firſt *Planters* of *Binfield-Heath* throw it into Ponds, or other hollow places ready at hand, to make room as well for *Habitation* as *Tillage*, in ancienter times: which I gueſs might be done in the Reign of King *Alfred*, 1. becauſe he divided the *Kingdom* into *Shires*, and *Hundreds*; and 2. becauſe *Binfield* gives Name to the *Hundred* (however inconſiderable it be now) in this Woody part of the *County*.

57. Moreover that this *Timber* muſt be buried by Deſign, and not caſually over-thrown, either by their *Roots* being looſen'd by too much Wet, occaſioned by the Obſtruction of *Rivers*, as *Cambden*[z] apprehends thoſe *Trees* were, found in *Chatmoſs* in *Lancaſhire*: Nor by the overflowing of any *Rivers*, nor fall of any *Torrent*, as *Steno* would have it[a]: Nor undermined by *ſubterraneous Streams*, or Diſſolution of Matter underneath them, as Dr. *Jackſon*[b] thinks it happened about 18 Years ſince at *Bilkely* in *Hereford-ſhire*, is plain and evident; for that all the *Country* hereabout lies very high, and is as ſtony a faſt ground, as almoſt any where to be found.

58. It remains therefore, that it muſt needs be deſignedly buried, and if in any other places of the *Heath*, as well as in the *Pond*, may poſſibly be diſcover'd either by the *Herbage* over them, which will wither much ſooner than any of the reſt; as near *Yeovil* in *Sommerſet-ſhire*, where, as we are informed by the Reverend and Learned Dr. *Beal*[c], the parched part juſt over them, will bear the very length and ſhape in groſs of the *Trees*, whence they have been inſtructed to find and take up Hundreds of *Oaks*: Or by the Direction of the *Dew* in Summer; it being obſerved in *Cumberland*[d], that the *Dew* never ſtands on any of the ground under which ſuch *Trees* lie; though poſſibly too, on the other ſide we may have no ſuch *Indications* here in firm grounds, they being hitherto obſerved only in *Moors* and *Moſſes*.

59. But as for the *Timber* at *Blund's-Court*, as it was found, ſo it requires a deeper Reſearch, it being very unlikely they ſhould dig ſo low, upon the ſame Score as at

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[z] Cambden *in* Lancaſhire. [a] Steno *in Prodrom.* concerning the Matter of Beds. [b] *Philoſoph. Tranſact. numb.* 53. [c] *Philoſoph. Tranſact. numb.* 18. [d] *Britannia Baconica* in *Cumberland.*

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Binfield, ſince *Timber* might have been buried on far eaſier terms, as formerly in *Kent*. Much leſs can it be admitted it ſhould be ſwallowed by an Earth-quake, or as the *Vulgar* will needs have it, thus cover'd with Earth by the Violence of a *Flood*, and particularly by that in the Days of *Noah*. For in either of thoſe Caſes, we ſhould have found each *Tree* with *Roots* as well as *Branches*, whereas theſe were plainly hewen off at the *Kerf*, as is uſed in felling *Timber*, the Marks of the *Ax* ſtill remaining upon them.

60. Beſide, the ſeveral other *things* found in Company of theſe *Trees*, ſeem to give Teſtimony of ſome other *Matters*. The firſt and chiefeſt whereof, is that Bluiſh kind of Subſtance, which I am ſtrongly perſwaded is *Cæruleum nativum*, and the rather becauſe found in an *Aſh-colour'd* Earth. The true *Cyprian Cæruleum*, or *Ultramarine*, as is teſtified by *Rulandus*, being found in *terra cinerea*; and the *Cæruleum Patavinum*, in *glebis ſubcinereis*[e]; with whom agrees *Kentmannus*, as cited above, Chap. 3. §. 18. And if true *Cæruleum*, we have reaſon to ſuſpect a *Mine* underneath; for then, ſays *Aldrovandus*, is *Cæruleum* produced, when ſome ſaline acid Humor (ſuch as the *Vitriol* that dyes the *Trees* Black) corrodes ſome *metallick* Matter or other[f]; which ſometimes is *Copper*, and ſometimes *Gold*, as *Encelius* witneſſeth it is at *Lauterberg* and *Goldeberg* in *Sileſia*, in his Book *De Re Metallica*[g]; where he alſo further adds, that *Gold* is melted out of *Cæruleum* it ſelf.

61. Dr. *Brown* alſo tells us, in the Account of his Journey from *Comara* to the Mine-Towns in *Hungary*[h], that at *Schemnitz*, where the *Silver* Ore holds ſome *Gold*, and at the *Silver* Mines in *Peru*, there are Rocks cover'd over with a fair ſhining Blue. *Rulandus*[i] alſo joyns it with a *Silver* Ore at *Gieſhubelia*, and ſo does *Pliny*[k]: What then ſhould hinder but it may be ſo here? ſince I do not doubt it to be the Steam of a *Mineral*; for when I was at the Bottom of the *Pit* (above 50 Foot deep) notwithſtanding the Openneſs of the *Pit*, and Coolneſs of the Day, no Sun appearing, I found it ſo *hot*, that the Drops followed one another on my Face, whence I judged the *Mine-chamber* not to be far off.

62. Which I rather gueſs to be of *Silver* than of any other *Metal*, becauſe of the *Alabaſtrine* or *ſpar-like* Sub-

[e] Mart. Ruland. *Lex. Alchemiæ.* [f] *Muſæum Metallicum, lib.* 3. *cap.* 8. [g] Encel. *de Re Metallica, cap.* 22. [h] Account of his Travels, *p.* 93, 94. [i] Mart. Rulandi *Lexicon Alchemiæ.* [k] *Nat. Hiſt. lib.* 33. *cap.* 12.

ſtance

ſtance found mix'd with it; which, ſays Mr. *Webſter*, was in ſome places intermixt alſo in the beſt *Silver-mine* ever yet found in *England*, the Ore whereof held about ſixty ſix Pounds *per* Tun[l]. From all which it may be concluded, that 'tis probable at leaſt that here may have been formerly ſuch a *Mine*, ſtopt up as I firſt thought by the *Ab-original Britains*, upon the Arrival and Conqueſts of the *Romans* or *Saxons*, who not being able to recover their *Country* within the Memory of Man, it might be loſt like the *Gold-mine* of *Glaſs-Hitten* in *Hungary*, when *Bethlem Gabor* over-ran that *Country*[m]; or the Gold-mine of *Cunobeline* in *Eſſex*, diſcover'd again *temp. Hen.* 4. as appears by the King's Letters of *Mandamus*, bearing Date 11 *May*, *An.* 2. *Rot.* 34. directed to *Walter Fitz-Walter* concerning it[n]; and ſince that loſt again.

63. Till at length they found the *Urns*, and then 'twas plain and evident that it muſt have been formerly ſome *Roman* Work, and probably ſtill remains ſome old *Roman* Mine, in all likelihood ſtopt up, when *Gallio* of *Ravenna* ſent hither with a *Legion* (the laſt that ever was in *Britain*) to repel the *Picts* and *Scots*, was finally recalled by *Valentinian* the Third, to aſſiſt *Ætius* in *Gallia* againſt the In-Roads of the *Francks* under *Clodion*, and to ſupport his then tottering, and quickly after ruined *Weſtern Empire*: At what time, ſays Mr. *Speed*[o], (but he quotes not his Author) they buryed alſo their *Treaſures*, whereof we have found Parcels in all Ages ever ſince.

64. And this 'tis likely they might do, firſt by throwing in *Trees*, which not lying cloſe enough immediately to ſupport the *Earth*, were after covered with *Haſels* (when the *Nuts* were fully ripe, which has occaſioned their Endurance to this very Day) on which they heaped *Earth*; which after ſome time ſinking below the Surface of the other Ground might occaſion this *Pond*, never thought to have been any other till the time above-mentioned.

65. After the *Accidents* of *Oaks*, come we next to thoſe of *Elms*, whereof there ſtood one on *Binſey*-Common, at the *Spurs* next the Ground at leaſt ſix Yards *Diameter*, occaſioned here, as (I ſuppoſe) at many other places, by erecting a Turf-Seat round the Bottom of the *Tree*, it being elſewhere but of ordinary Dimenſions. But this is not ſo extravagant in the Exceſs of the Growth of its *Trunk* near

[l] Hiſtory of Metals, *chap.* 13. [m] Dr. *Brown*'s Travels into *Hungary*. [n] Sir *John Tettus* his *Fodinæ Regal. cap.* 9. & 13. [o] *Hiſtory of* Britain, *lib.* 6. *cap.* 54.

the

the Ground, but there was another more ſtrange for a Defect in that place, *viz.* a great old *Elm* formerly growing near the North-Eaſt Corner of the Bowling-green in *Magdalene-College* Grove, disbark'd quite round, at moſt places two Foot, at ſome at leaſt a Yard, or four Foot from the Ground; which for many Years flouriſhed as well as any *Tree* in the Grove.

66. Now how this ſhould come to paſs (all *Trees* being believed to receive their Nouriſhment between the *Wood* and *Bark*, and preſently to die upon their Separation) many have admired, but few attempted to explain, being further diſcouraged by the Abſence of the *Pith*, the *Tree* being within as hollow as a *Drum*, and its outmoſt Surface, where unbark'd, dead and dry beſide. All which I think had not ſtartled me much, but that I found it in our *Tranſactions* [p] poſitively aſſerted, that if any Circle be drawn round any common *Engliſh Tree* (only *Aſh* excepted) as *Oak*, *Elm*, *Poplar*, *&c.* by Inciſion to the *Timber* (how thin ſoever the Knife be) ſo that no part of the *Rind* or *Bark* to the very ſolid *Timber* be uncut, the *Tree* will die from that part upwards.

67. For the better clearing of which *Point*, and Avoidance of the attending *Difficulties*, it will be but requiſite, though two principal Parts of our *Tree* be wanting, to repreſent in *Sculpture*, at leaſt a *Sextant* of the Body of an *Elm* cut tranſverſly, together with the *Bark* and *Pith*, as well as the *Wood*, as they all appear in a *Microſcope*; Which without further Trouble, or Suſpicion of Falſehood, I have carefully taken out of the *Anatomy* of *Trunks* publiſh'd by the Accurate and Ingenious Dr. *Grew*, as in *Tab.* 10. *Fig.* 2. only with ſome Alteration of the *Letters* of *Direction*. Wherein

AB, CD. *repreſent the whole Bark of the Tree.*
AB. *the Skin of the Bark.*
CD. *one kind of ſap Veſſels.*
EF. *another kind of ſap Veſſels.*
GH. *the Parenchyma of the Bark wherein the Veſiculæ are ſo exceeding ſmall, as Difficultly to be perceived by the Microſcope.*
IK, LM, NO, PQ. *the great air Veſſels poſtured chiefly in Rings on the inner Verge of every annual Growth of Wood.*

[p] *Philoſoph. Tranſact. Numb.* 43.

rs, rs, rs.

rs, rs, rs. *the ſmall air Veſſels poſtured in croſs Bars.*
TVW. *the Pith.*
XY. *the diametral Portions, or Inſertions running through the ſeveral annual Rings from the Pith to the Bark.*
zzzz. *the true Wood, having been Originally the ſap Veſſels of the Bark.*

Now the *ſap Veſſels* in this *Diagram* being only to be found in the Bark, and thoſe *Paſſages* intercepted at ſo great Diſtances, as above-mentioned in our *Elm*, the great *Queſtion* ſtill returns as Difficult as before, and as far from Solution.

68. In the clearing whereof, it muſt firſt for certain be anſwer'd, that its a great Miſtake (though it have obtained ſo long) that a *Tree* only lives by the Aſcent of its Nouriſhment in or between the Bark and the Wood, and that *Trees* muſt needs dye when once they are bark'd round, here being matter of Fact to confute thoſe *Opinions*. And ſecondly, that it is as certain a *Truth* as the other is a *Miſtake*, that an *Elm*, as well as an *Aſh*, or any other *Tree*, whatever Experiments may have been made, may and does ſometimes live after 'tis disbarked, and that therefore there muſt be other *Veſſels*, beſide the *ſap Veſſels* of the Bark, capable of the Office of conveying *Sap*, ſufficient not only for the Life, but flouriſhing Condition of a *Tree*.

69. And ſuch perhaps are a ſort of ſmall *Veſſels* in the very *Schematiſm* of the *Wood* at zzzz, not perceptible by a *Microſcope*, it being on all hands agreed on, that the whole *Wood* of *Trees*, was all heretofore the *ſap Veſſels* of the Bark: The Bark every Year, as Dr. *Grew* [q] well obſerves, dividing into two *Parts*, and diſtributing it ſelf two contrary Ways; the *outer* Part falling off toward the Skin at AB, and becoming at length the Skin it ſelf; and the *inner* Part adding it ſelf to the *Wood*, the *Parenchymous* Part thereof making a new Addition to the *Inſertions* at XY, and the *ſap Veſſels* a new Addition to the *Lignous Parts* at zzzz ſtanding between the *Inſertions*: So that a Ring of *ſap Veſſels* in the Bark this Year, becomes a Ring of *Wood* in the *Tree* the next; all which may be perfectly ſeen in the great *Oak* afore-mentioned, (§. 45. of this *Chapter*, and belonging to the ſame *College*) at ſeveral places where the Rind is bruiſed off.

[q] *Compar. Anatom. of Trunks, chap.* 3.

70. And if ſo, not unlikely they may ſo far retain their ancient Office of conveying *Sap*, as to keep a *Tree* alive, though not augment it, which perhaps may be one different uſe of theſe *ſap Veſſels* in the *Wood* from thoſe in the *Bark*, theſe being ſufficient for the *Continuation* of a *Tree*, and the others ſerving only for its *Augmentation*: Which if true, and our *Tree* paſt its Increaſe, as no doubt it has been many Years ſince; what need has there been of any ſuch thing as the *ſap Veſſels* of the *Bark*? or indeed of the *Bark* it ſelf?

71. Now that this indeed is certainly ſo, ſeems agreed on and confirmed by the Learned and Ingenious Mr. *Willughby* and Mr. *Ray* [r]; who have made it appear by irreſiſtible *Experience*, that the *Sap* not only aſcends between the *Bark* and the *Tree*, but alſo thro' the very Subſtance of the *Wood*: And by the accurate Dr. *Grew* [s], who allows to the *Wood*, as well *Sap-veſſels* as *Air-veſſels*, it being proper to the *Bark* to have *Sap-veſſels* only. All which put together, ſeem abundantly to diſpel all appearing *Difficulties*, and no queſtion will ſatisfy all unprejudiced *Readers* how our *Tree* came to flouriſh, though disbark'd all round.

72. But if there ſhall be any found ſo froward, as not to allow (againſt all Experience) thoſe minute *Sap-veſſels* in the Subſtance of the *Wood*, yet the viſible *prick'd Circles* between the *annual Coats* of the *Wood*, obſerved alſo by Mr. *Willughby*, Mr. *Ray*, and Dr. *Tong* [t], which I ſuppoſe may be the large *Air-veſſels* of Dr. *Grew*, may be ſufficient for this purpoſe; eſpecially in *Elm*, where they are numerous and of two ſorts, as in *Tab.* 10. *Fig.* 2. IK, *&c.* rs, *&c.* It being the Office of *Air-veſſels*, for about a Month in *March* and *April* [u], before the new *Sap-veſſels* of the *Bark* are fit for uſe, to convey the *Sap* neceſſary for the *Vegetation* of all *Plants*. And if ſo, in old *Trees* that have done growing, and have no need of the *annual* new Production of a *Bark*, why may it not continually aſcend by them ſtill?

73. To which if it be objected, that a *Tree* lives as well by *vegetable Air* as *Sap*, and that if the *Air-veſſels* be continually fill'd with *Sap*, the *Tree* muſt dye on the other ſide for want of *Air*: It may eaſily be reply'd, that the uſe of the *Inſertions* or *Diametral Portions*, *Fig.* 2. XY, interceding the *Pith* at TVW, and the *Parenchyma* of the

[r] *Philoſoph. Tranſact. numb.* 43. [s] Comparat. Anatom. of Trunks, *cap.* 8. [t] *Philoſoph. Tranſact. numb.* 43, *and* 48. [u] Dr. *Grew* of the Vegetation of Plants, *cap.* 1.

Bark

Bark at GH, all made of ſmall kind of *Bladders* cluſter'd together, is for Conveyance of *Air*, as well as the *Air-veſſels* themſelves. But if it be further urged, that the *Diametral Portions* only ſerve to convey it by the *Breadth*, and not the *Length* of the *Tree*, which makes them inſufficient for this purpoſe; we have Latitude enough, and can allow the *leſſer Sap-veſſels* that lye in croſs Bars at *rs* to ſupply that Defect, and ſtill retain all the Ranges of the great *Air-veſſels* at IK, LM, NO, PQ, for Conveyance of the *Sap*, in ſuch like Trees as our old *Elm*.

74. And if it be further enquired, how it comes to paſs that ſome *Trees* do dye upon the Loſs of their *Bark*, and all are not preſerved by the Help of the *Sap*, or *Air-veſſels* of the *Wood*: It may be anſwer'd, and probably rightly enough, that ſuch *Trees* as are young, and growing, have a plentiful Iſſue of thin *Sap* between the *Bark* and the *Wood*, and that readily *bleed* when they are wounded or bored, do moſt commonly (if not always) certainly dye: whereas ſome of the ſame *Trees* when older, paſt growing, eſpecially if they have a more gummy Juice, ſuch as *Aſh*, *Elm*, *Lime-tree*, *&c.* may live and flouriſh many Years after their diſbarking, by the *Saps* Aſcent through the *Sap* or *Air-veſſels* of the *Wood*.

75. Moreover, amongſt the *Accidents* that have happen'd to *Elms*, I muſt not forget a very pleaſant one that fell out at *Middle-Aſton*, where cleaving of *Elm* Blocks at one Mr. *Langſton*'s, there came out a Piece ſo exactly repreſenting a Shoulder of *Veal*, that it was thought worth while to preſerve it from the Fire by the *Owner* of it, by whom it was kindly beſtowed on me, as an Addition to the reſt of my *Curioſities* of *Nature*.

76. But the moſt remarkable *Accidents* that ever befel *Trees*, perhaps here, or in any other *County*, were the *Foundations* of two eminent *Religious Houſes*, both occaſioned by *Trees*. The firſt *Oſeney-Abby*, Founded in that place by *Robert D'Oyly* the Second, by reaſon of a certain *Tree* that ſtood in the *Meddows* where after he built the *Abby*, to which it ſeems repaired a company of *Pyes*, as often as *Editha* the Wife of *Robert* came to walk that way, which in company with her *Maid* ſhe often uſed to do (as *Leland* expreſſes it) to Solace *her ſelf* [w]: at whoſe arrival the *Pyes* were always ſo *Clamorous*, that *ſhe* took notice of it, and conſults with one *Radulphus*, Canon of St. *Frideſ-*

[w] Lelandi *Itinerarium*, *Vol.* 2. *pag.* 18, 19.

wid's, what this might ſignify: who cunningly Adviſes, that ſhe muſt build ſome *Church* or *Monaſtery* where the *Tree* ſtood, which *ſhe* inſtantly procures her *Husband* to do, and this *Radulphus* (her *Confeſſor*) to be made the firſt *Prior*.

77. What *Tree* this was, *Leland* acquaints us not; but that which occaſioned the ſecond *Foundation* in the place where it is, was a *triple Elm*, having three Trunks iſſuing from one Root. Near ſuch a Tree as this Sir *Thomas White*, Lord Major of *London* (as we have it by Tradition) was warned in a *Dream* he ſhould build a *College*, for the Education of Youth in Religion and Learning: whereupon he repairs to *Oxford*, and firſt met with ſomething near *Gloceſter-Hall* that ſeem'd to anſwer his *Dream*, where accordingly he erected a great deal of Building. But afterward, finding another *Elm* near St. *Bernard's-College*, ſuppreſt not long before by King *Hen.* 8. more exactly to anſwer all the circumſtances of his *Dream*, he left off at *Gloceſter-Hall*, and built St. *John Bapt. College*, which, with the very *Tree* beſide it, that occaſioned its *Foundation*, Flouriſhes to this Day, under the *Preſidence* of the Reverend Dr. *Delaune*.

78. Beſide the *Elms* at St. *John's* knit together at the *Root*, there was two *Beeches* in the Way from *Oxford* to *Reading*, near a place called *Cain-end*, more ſtrangely joyned together a great height from the ground: for the Bodies of theſe *Trees* come from different Roots, and aſcend parallel to the Top, but are joyned together a little before they come to bough, by a tranſverſe piece of Timber entring at each End into the Bodies of the *Trees*, and growing jointly with them, for which reaſon 'tis commonly called the *Gallow-Tree*, though the piece that intercedes them lies ſomewhat obliquely: How this ſhould come to paſs many have wondered, but the Problem I gueſs may be eaſily ſolved, only by allowing the tranſverſe piece of Timber to be one of the Boughs of the *Tree* to which its lowermoſt End ſtill joyns, which whilſt young and tender, might bear ſo hard againſt the Body of the neighbouring *Tree*, that with the continual Motion of the Wind, it might not only fret it ſelf aſunder, but gall off the *Bark* too of the other *Tree*; which cloſing up again in calm Weather at the riſing of the *Sap*, might well include ſo near a Neighbour, firſt within its *Bark*, and after ſome time within the *Wood* it ſelf: which I have obſerved to have been done but very lately in *New-College* Gardens, where the Boughs of two different *Sycomores* are thus grown together, only by bearing

ing hard on one another, and interchangably fretting away each others *Bark*, and then closing up again at the rising of the *Sap*.

79. There have also some *Accidents* befallen the *Ash* and *Willow*, not commonly met with; the former whereof in a Close of one Mr. *Coker*, of the Town of *Bisseter*, grows frequently out of the Bole of the other, yet not as 'tis usual amongst other *Trees*, but so that the Roots of the *Ashes* have some of them grown down through the whole Length of the Trunks of the *Willows*, and at last fastening into the Earth it self, have so extended themselves that they have burst the *Willows* in sunder, whose sides falling away from them and perishing by Degrees, what before were but the *Roots*, are now become the *Bodies* of the *Ashes* themselves: the same again at *Little-Balden* in the Grounds of Sir *Sebastian Smith*. But this happens only to *Willows* that have been lopt at six or seven Foot high; the *Willows* at *Enston*, in the Walks near the Rock, whereof there are several about 50 Foot high, being incapable I suppose of any such *Accident*.

80. Beside this unusual Growth of the *Ash*, I have met with other *Accidents* that frequently attend it, which because so much commended by *Pliny*[x] in *Maple*, in which they are common, I think, ought much more to be noted in this: And such are the *Nodosities*, called *Bruscum* and *Molluscum*, to be found in *Ash* as well as *Maple*, which when cut, shew a curled and twining Grain; the *Bruscum* thick and intricate, the *Molluscum* being streaked in a more direct Course. With the *Molluscum* of *Ash* there is a whole Closet wainscoted, at the much Honoured Mr. *Stonor*'s of *Watlington* Park, the Grain of the Panes being curiously waved like the *Gamahe*'s of *Achats*. And at the Worshipful Mr. *Read*'s, of the Parish of *Ipsden*, the *Bruscum* of an old *Ash* is so wonderfully figured, that in a Dining-Table made of it (without the Help of Fancy) you have exactly represented the Figure of the Fish, we commonly call a *Jack*, though endeavouring to *mend*, they have somewhat *marr'd* it by *Art*: and in some other *Tablets* the Figures of a *Unicorn*, and an old *Man* from the Navel upwards, but neither of these so plain as the former.

81. *Jacobus Gaffarellus*, amongst his *Unheard of Curiosities*[y], tells us of a *Tree* found in *Holland*, which being cut to pieces by a Wood-cleaver, had in one part of it the

[x] *Nat. Hist. lib.* 16. *cap.* 16. [y] Unheard of Curiosities, *chap.* 5.

Figure

Figure of a *Chalice*, in another that of a Prieſt's *Albe*, in another that of a *Stole*; and in a word, there were repreſented very near all the *Ornaments* belonging to a *Prieſt*: which Relation, if true, ſays he, it muſt needs be confeſt, that theſe Figures could not be there caſually or by chance; and indeed 'tis very hard to think, how ſo many things pertinent to the ſame *Office*, ſhould thus meet together without ſome Deſign of *Nature*. However, 'till I am better ſatisfyed of the Truth of the thing, or convinced by the ſight of ſome other ſuch *Curioſity*, I cannot afford to think ours (being altogether independent) more than meer *Accidents*.

82. Beſide theſe unuſual *Accidents* of whole *Trees*, or their *Trunks*, there are ſome alſo that have happened to their upper Branches and Leaves, whereof the former are ſometimes *faſciated*, and the latter *ſtriped*. In *Willows*, and ſome other of the ſofter Woods, the uppermoſt Boughs are commonly *faſciated*, but the beſt of the kind I ever yet ſaw, was the Top-branch of an *Aſh*, which I met with at *Biſſeter*, not only *faſciated*, but moſt uniformly wreathed two or three times round. And there was a good Example of this Nature, in a Top-branch of *Holly* hanging up in the Gate-houſe of the *Phyſick-garden*, whence 'tis plain, that this happens alſo to the hardeſt Woods; and in both, by the Aſcent of too much Nouriſhment, though in Branches of *Trees*, eſpecially ſuch as are not only *flat* but *Helically* curled, I gueſs there concurs ſome blaſt, or ſome ſuch like matter, that contracts the *Fibers* and ſo turns them round, beſide the exceſs in the Aſcent of their Nouriſhment.

83. As for the ſtriped Leaves of *Trees*, as well as thoſe of *Shrubs* and *Herbaceous Plants*, I ſuppoſe they may be met with almoſt in every *kind*. The greater *Maple*, miſcalled the *Sycomore*, was found ſtriped White not many Years ſince in *Magdalene-College* Grove, and tranſlated thence into the *Phyſick-garden*, where it flouriſhes and retains its *Stripings*; and I hear of a *ſtriped Elm* ſomewhere in *Dorſet-ſhire*. Dr. *Childrey* [z], and out of him the Ingenious Mr. *Evelyn* [a], inform us of an Oak in *Lanhadron* Park in the County of *Cornwall* (to omit the painted *Oak* in the Hundred of *Eaſt*) which conſtantly bears Leaves ſpeckled with White. And there was another of theſe found in the Year 1676, by my worthy Friend Dr. *Thomas Taylor*, in a place called *Frid-wood*, in the Pariſh of *Borden*

[z] *Britannia Baconica* in Cornwall. [a] Diſcourſe of Foreſt Trees, *chap.* 3.

near

near *Sittingbourn* in *Kent*. But of theſe more hereafter, when I come into thoſe *Counties*.

84. Of *Unuſual Trees* now cultivated in *Oxford-ſhire*, there are ſome remarkable; ſuch is the *Abele-tree*, advantageouſly propagated by Sir *George Croke* of *Waterſtock*, which he does, by cutting *Stakes* out of the more ſubſtantial part of the *Wood*, which put into moiſt Ground grow more freely than *Willows*, coming in three or four Years time to an incredible Height. And ſuch are the *Fir-tree*, and the leſſer *Mountain-pine*, whereof there are ſeveral *Nurſeries* planted in the *Quincunx* Order, at *Cornbury*, in the Park of the Right Honourable the Earl of *Clarendon*, which they propagate by *Slips* twiſted, as well as by *Kernels*, to that Advantage that there is great Hopes of beautiful and ſtately *Groves* of them; ſuch as I met with at the Right Worſhipful Sir *Peter Wentworth's* at *Lillingſton Lovel*, where there are three Walks of *Firs*, moſt of them 20 Yards high.

85. Which Pariſh, if the Reader look for in the Map of *Oxford-ſhire* he muſt not expect to find, though it belong to the *County*, it lying five Miles within *Buckingham-ſhire*: as on the other ſide, ſeveral Pariſhes of *Berk-ſhire*, *Buckingham-ſhire*, and *Worceſter-ſhire*, are placed within *Oxford-ſhire*. How theſe things come to paſs we have little of Certainty, but in all Probability this *Lillingſton* was accounted in *Oxford-ſhire* for the ſake of the Lords *Lovels*, whoſe Inheritance, from the Addition, we may conclude it once was; who being powerful *Men* in theſe parts, and not unlikely moſt times the *King's Lieutenants*, might have Permiſſion to reckon this their own *Eſtate*, within their own Juriſdiction as part of *Oxford-ſhire*; as I ſuppoſe all other *Pariſhes* thus placed out of the Body of their *Counties*, may alſo have been. "For thus I am told by "Dr. *Stanley*, that in *Germany* all the Poſſeſſions of the "Houſe of *Auſtria* are accounted in that Circle, let them "lie within what other Circle ſoever.

86. From this neceſſary, and therefore I hope pardonable Digreſſion, I proceed to ſome *Fruit-trees* not ordinary elſewhere, ſuch as the *Double-bearing* Pear-trees: whereof I met with *one* in the Pariſh of *Haſeley*, at a place called *Lachford*, in the Hort-yard of Mr. *Gooding*, called the Pear of *Paradiſe*, whoſe firſt Crop is ripe about *Midſummer*, and the ſecond at *Michaelmaſs*. There is alſo another of theſe, but of a different kind, in the Pariſh of *Stanlake*, at the

the *Chequer-Inn*, called the *Hundred-pound* Pear, which bloſſoms at two diſtinct times, and bears two Crops, whereof it has both ſorts (much like the Fig) upon the Tree at a time, ſome ripe, and others green. But in both theſe *Trees*, the Pears in the ſecond Crops are ſomewhat leſs than of the firſt, and grow both after a peculiar manner, moſt of them, if not all, coming forth at the ends of the Twigs, which are all the Pedicles they ſeem to have; and therefore on the *Tree* they do not hang downwards, like thoſe of the firſt Crop, but point up in the *Air*, or any other way the Shoots direct them.

87. At *Corpus Chriſti College* they have a ſort of *Pear-tree*, that bears Fruit in Hardneſs little Inferior to the younger Shoots of the very *Tree* that bears them; and therefore not undeſervedly by ſome called the *Wooden-pear*, though in wet Years I have known them pretty ſoft: but generally they are ſo ſound, and of ſo unalterable a Conſtitution, that I had ſome by me, that were ſeaſonably gather'd, above ten Years old, as hard and firm as ever they were at firſt, only ſomewhat leſs than when firſt gather'd; for which very reaſon, in ſome Parts of *Worceſter-ſhire* where they have plenty of them, they are called *Long-laſters*, being not ſubject to rot like other *Pears*.

88. And thus I had finiſh'd the Chapter of *Plants*, but that I think fit to acquaint the *Reader* of a further Deſign I have concerning them, *viz.* Of enquiring hereafter into ſome other *Accidents* of *Plants* of an Inferior Quality to any before mentioned; which yet perhaps are more abſtruſe in their Conſideration than the more noted ones are. And ſuch are the *Blebs* or *Bliſters* we find on the Leaves of many *Trees* and *Shrubs*, which ſometimes happen to them after Heat and Droughts, and ſometimes too upon cold nipping Weather: but whether thus infected from the *Air* from without, or by *Juices* within, or by *both*; and when by one, or the other, or both together? is a Queſtion requires a great deal of Time, and more Sedulity than has yet been afforded to be but probably ſolved.

89. And this I the rather deſign, becauſe all that I find certain concerning them yet, is only that the weak and free growing ſappy *Trees* are moſt ſubject to them, and the ſtout *Ever-greens* but little, if at all: that the *Infection* for the moſt part is under, and the *Bliſter* above the Leaf, but ſometimes otherwiſe: that the *Bliſters* ſometimes have *Inſects* in them, ſometimes bear *Fungus*'s on their Tops,

Tops[b], and ſometimes have neither: But what kind of *Inſects* or *Fungus*'s they are, that belong to each *Plant* that have them? or whether the ſame *Plants* have not ſometimes different *Inſects* and *Fungus*'s eſpecially in dry, and wet Years? are alſo *Queſtions* that require indefatigable Induſtry, to be in any meaſure ſatisfied.

[b] *See Mr.* Hook's *Micrograph. Obſerv.* 19.

ADDITIONS *to* CHAP. VI.

§. 39. The *Glaſtonbury Thorn.*] There was alſo a *Wal-nut-Tree* at *Glaſtonbury* that never put out till St. *Barnabas-Day*, *Brit. Bacon.* p. 36. and there grows (as I am told) at *Aſhorne*, within 3 Miles of *Warwick*, a *Thorn* which Bloſſoms at *Chriſtmaſs*, *County Collect.* p. 136. and another about a Mile from *Worceſter*, in a Hedge near an Ale-houſe in the Way toward *Droitwich*, *County Collect.* p. 159.

§. 43. I come at length to the *Trees.*] The moſt frequent *Tree* in this County is the *Beech*, which yields the moſt healthy Firing in the World, it curing all the Maladies of low Situations, witneſs the frequent Fogs about *Copenhagen*, where yet the Colds of the Lungs are very rare, which is attributed by Mr. *Montſworth* to the Pureneſs of Firing, which is of *Beech* Wood much abounding there. See his *Account of* Denmark, *p.* 9.

§. 47. Neither of theſe *Oaks* equal to the *Lycian Platanus* of *Pliny*; who affirms, that it was hollow within, and yielded a Cave of 81 Feet in Compaſs; and that it carried an Head withal ſo like a Grove, ſo large and broad, ſo branched, that every Arm did reſemble one entire Tree, *&c. Lib.* 12. *Cap.* 1. See more concerning the *Platanus* in Mr. *Evelyn*'s *Sylva*, Cap. 23. p. 117.

§. 51. Of a Black Hiew like *Ebony.*] The *ſubterraneous Oaks* in *Pembroke-ſhire* were alſo as Black as *Ebony*, *Britan. Bacon.* p. 143.

§. 62. There were *Gold* and *Silver-Mines* alſo in *Devonſhire.* See the *Calendars of the Rolls in the Tower* verbo Minera & Mineratores. And that the *Romans* did work in our Mines. See *Britan. Bacon.* p. 10.

§. 63. They buried alſo their Treaſures;] *Anno* 418. *Romani coacervarunt omnes qui eſſent in* Britannia *Auri Theſauros, ac partim in Terra occultabant.* Chron. Sax. *p.* 10.

§. 71. But alſo through the Subſtance of the *Wood:*] That

the *Sap* does aſcend as well thro' the *Wood*, as between that and the *Bark*, I ſaw plainly by a young *Apple-Tree* at *Sutton-Barn* in the Pariſh of *Borden* in *Kent*; which was dead below, the *Bark* pilling off, but was yet alive at the Top; both the Rind and Wood being alive, as appeared by paring and cutting them both.

§. 77. Warned in a Dream, &c.] *Vid. Lib. M. S. in Bib.* Cotton. *ſub* Claud. *De Fundatione diverſorum Monaſteriorum per miracula divinitus oſtenſa.* B. 4. f. 354, 355.

§. 78. Of much larger than theſe ſo conjoyned ſee Mr. *Evelyn* of Foreſt Trees, *p.* 161. *chap.* 30.

§. 79. Accidents befallen the *Willow*.] Here may be mentioned the *Salix corticem abjiciens* of Mr. *Ray*, growing near *Goosford-Bridge*, as I was informed by the Learned *Botanick Profeſſor*, Mr. *Jacob Bobart*.

§. 85. Here it may be remember'd, that there is a part of *Oxford-ſhire* on the other ſide the *Thames*, *i. e.* on *Berkſhire* ſide near *Culham* and *Sutton*, as I was inform'd by Mr. *Richard Sherwood*.

CHAP. VII.

Of Brutes.

HAVING done with the *Vegetative*, I proceed to the *Animal Kingdom*, wherein I ſhall conſider firſt, that part of *it* that indeed has *Apprehenſion* of external *Objects*, of *Pleaſures* and *Pains*, and *Locomotion* to make addreſs to the *one*, and fly the *other*, but is void of *Reaſon*; within which may be comprehended all manner of *Brutes*, ſuch as *Birds*, *Inſects*, *Fiſhes*, *Reptils*, and *Four-footed-Beaſts*, which I preſume may be a *Subject* ſufficient for this *Chapter*, though as in the former of *Plants*, I intend only to mention *ſuch*, as either have not been *noted before*, are very *unuſual*, or have ſomething *extraordinary* attending them; Leaving what concerns *Men*, for a *Chapter* by it ſelf.

2. And herein, as before in the *Chapter* of *Formed Stones* (and as I intend for the future in all other *Chapters*, ſo far forth as they will bear it) I ſhall obſerve the *Method* of the whole *Eſſay*, and firſt treat of ſuch *Animals* as are Inhabitants of the *Heavens*, then of thoſe that belong to the *Waters*, and laſtly of ſuch as inhabit the *dry Land*; of which in their order.

3. But amongſt the Inhabitants of the *Air* or lowermoſt *Heaven*, it cannot be expected in ſo ſmall a County, I ſhould produce *many* not already noted, ſince the *feathered* Kingdom has been ſo lately and ſo carefully ſurveyed, by the Learned and Induſtrious *Francis Willughby* Eſq; Nor indeed could I meet with any omitted by him, except perhaps a *little Bird*, ſometimes ſeen, but oftner heard in the *Park* at *Woodſtock*, from the noiſe that it makes, commonly called the *Wood-cracker*: Deſcribed to me (for I had not the Happineſs to ſee it) to be about the Bigneſs of a *Sparrow*, with a *blue* Back, and a *reddiſh* Breaſt, a *wide* Mouth and a *long* Bill, which it puts into a Crack or Splinter of a rotten Bough of a Tree, and makes a noiſe as if it were rending aſunder, with that Violence, that the noiſe may be heard at leaſt 240 Yards, ſome have ventured to ſay a *Mile* from the place.

4. Which is all I could find in the *County* of *Oxford* omitted by that careful and ingenious *Author*, except I may have leave to number the *Diabolus marinus*, or Sea *Devil's-bird* mention'd by *Johnſton*[c], and others, and to be ſeen in the Repoſitory of the *Bodleian Library*: Which though it has ſo ill a Name, contracted I ſuppoſe from its *exquiſite* Blackneſs, and the ill it bodes to *Sea-men* whenever they ſee *it*; yet is a very beautiful *Bird*, and has therefore by ſome been numbred amongſt the *Manucodiata*'s, and called the *black Bird* of *Paradiſe*. But of this no more, becauſe no Inhabitant of the *Land*, much leſs of this *County*.

5. Which yet I think I had not forborn to deſcribe, had our *Bird* been perfect, it not being to be found in *Sculpture* in any *Author* that I know of: For though I did it not in foreign undeſcribed Plants growing in our *Gardens*, well knowing the much abler Dr. *Moriſon* to have done it; Yet I think I may take the Liberty to do it in *Animals*, not hearing of any Body elſe now deſigning ſuch a Work.

6. And therefore ſhall not omit the *Hen* from the *Iſle* of St. *Helen*, lately living, and in the Poſſeſſion of the Right Honourable the Lord *Norreys*, a great Lover of *Curioſities* in all ſorts of *Animals*: which for her kind I think may be accounted one of the γαμφώνυχες, and amongſt them of the rapacious, carnivorous ſort, having her *Beak*, near its end, crook'd after the manner of a *Vultur*, and ſtriking with her *Pounces* like a *Hawk*, though her *Talons* indeed are not much more turned than thoſe of a common *Houſe Hen*.

7. In her *Head* 'tis true ſhe is ſomewhat like the ſecond ſort of *Gypaetos* of *Aldrovandus*[d], or the *Percnopteros* of *Johnſton*[e], being bald and wrinkled, but not quite to the hinder part of the *Head*, as they are ſaid to be; having from the Crown of her *Head* down to the Beginning of her *Neck*, and ſo behind her *Ears* to her *Throat*, a ſort of ſlender *Plume*, like *Briſtles*, which ſhe erects or lets fall at Pleaſure: in her *Gorge* alſo and *Pounces* ſhe is very unlike them, for though ſhe be *Carnivorous*, yet her *Gorge* is ſlender, and though ſhe ſtrike with her *Pounces*, they ſcarce exceed in Bigneſs thoſe of a common *houſe Hen*, whereas the *Gorge* and *Pounces* of the *Gypaetos*, and *Percnopteros*, are protuberant and very long; nor has ſhe like them any

[c] *De Avibus, lib.* 4. *Tit.* 2. *cap.* 4. [d] *Ornitholog. Tom.* 1. *lib.* 2. *cap.* 10. [e] *Hiſt. Nat. de Avibus, lib.* 1. *Tit.* 1. *cap.* 2. *Art.* 4.

part

part of her *Plume* ſo diſpoſed at the top of her *Back*, as to repreſent a *Monk*'s Hood, thrown backward from his Head [f].

8. However, for her near Reſemblance of them in her *Head* and ſome other *Parts*, we cannot but allow her to be a Bird of that *Genus* though undeſcribed; and accordingly adviſe, ſhe may be placed amongſt them by future *Ornithologiſts*, to which purpoſe let them take the following Deſcription.

9. Her *Beak* is ſtraight, only at the Extremity, where it is turned like the *Vulturs*, in Length 2 Inches $\frac{3}{4}$, and her *Nares* long and narrow, as in *Tab.* 10. *Fig.* 3. The *Pupillæ* of her *Eyes* are full and black, encompaſſed with *Irides* of a dark brown Colour, bald and wrinkled to the top of the Head, and ſo round by the *Ears* (which are of an irregular *Oval* Form) next which ſtand the *pennæ ſetiformes* as aforeſaid; her *Gorge* not at all protuberant, but ſlender; her Wings complicated or folded to her Body, reach almoſt to the end of her *Train*, and extended at full Stretch, have their Extremities diſtant about five Foot, being ſomewhat larger than thoſe of a *Lanar*, and containing in each of them 34 *Remiges*, *i. e.* beſide the five *Feathers*, 29 at leaſt or 30 *Flags*: her *Thighs* and *Pounces* are much like thoſe of a common *houſe Hen*, having the outermoſt *Talon* knit to the reſt by a *Membran*. In the whole, ſhe is bigger than a *Moſcovy Goſhawk*, from the point of her *Beak* to the Extremity of her *Train*, above two Foot long, her *Plume* for the moſt part being of an Aſh-colour, mixt with ſome White Feathers, and growing Whiter upon *Mewing*, as thoſe of *Hawks* do.

10. Other *Birds* there are *here* that are but rarely ſeen, yet breed in this *Country*, and are continually with us, and therefore to be numbred amongſt thoſe we call *Perennial*. Such are the *Upupa* the *Hoopoe*, or *Hooping-bird*; whereof I ſaw one alive on *Otmoor*, and another was given me for the *Repoſitory* of the *Bodleian Library* (killed ſomewhere about *Caſſenton*) by one Mr. *Painter* Alderman of *Woodſtock*. A Bird it is to Admiration beautiful, being curiouſly decked with Feathers of divers Colours, and with a large *Creſt* on its Head, as it is exquiſitely engraven both by Dr. *Charleton* * and Mr. *Willughby*; but like the *Diabolus Marinus*, never appearing or being heard (as the Vulgar

[f] *Vid.* Willughbeii *Ornitholog. lib.* 2. *cap.* 3. *Artic.* 8. *& Tab.* 4. * *Onomaſt. Zoicon. Titul. Aves, Claſſe Conorarum.*

will

will have it) till immediately before ſome approaching Calamity.

11. As for Birds that have caſually flown hither, or come but at ſome certain *Seaſons* of the Year, by *Naturaliſts* ſtiled *Aves Migratoriæ*, beſide *Swallows*, and ſome well known Winter Fowl: The *Cormorant* has been obſerved to come hither about *Harveſt* time, whereof there was one killed from St. *Mary*'s Steeple (tired with a long Flight) *An.* 1675. and another Young-one taken up in *Arncot-field* fallen down in the Corn, and brought me to *Oxford*.

12. But what is ſomewhat ſtranger, in the Year 1644. the *Pica Braſilienſis*, or *Toucan*, whoſe *Beak* is near as big as its whole Body, was found within two Miles of *Oxford*, and given to the *Repoſitory* in the *Medicine-School*, where it is ſtill to be ſeen; which argues it a *Bird* of a very *rank* Wing, there being a Neceſſity of its flying from *America* hither, except we ſhall rather ſay it might be brought into *England* by Ship, and afterwards getting away might fly *hither*.

13. Of *Birds* well known of *unuſual Colours*, I have met with *two* remarkable Examples: the one a White *Linnet*, given me by Mr. *Lane* of *Deddington;* and the other a ſort of *white*, and *pyed Pheaſants*, kept by the Right Honourable *James* Lord *Norreys* of *Ricot:* Whereof how ſome happen to be of different Colours from the reſt of their *Species*, eſpecially when they have deviated from their kind by *Whiteneſs*, hath been a *Queſtion* thought worthy of ſevere Examination. In the Proſecution whereof, it hath been obſerved (as before in the *Chapter* of *Plants*, §. 38.) that *Whiteneſs* often proceeds from a Defect of Moiſture or Nouriſhment; and it hath been a received Opinion concerning *Birds*, that they may become *white* by plucking off their firſt Feathers, which will cauſe their new ones to come forth of *that* Colour. But beſide theſe ways of *Art* and *Privation*, it is manifeſt that *Nature* her ſelf ſometimes poſitively deſigns ſuch a Colour, even in *Species* too that ſeldom are of it, many other *Animals* as well as *Birds*, having been produced of *that* Colour unuſual to the *Species*, as brisk and well liking as any other whatever, ſuch as *white Moles*, *Rats*, *Mice*, and ſometimes *white Fawns*, where there has been neither *Buck* nor *Doe* of that Colour in the Park.

14. And this I gueſs ſhe does by giving ſome certain *Individuals* of each *Species* a Skin of finer and more contracted *Pores* than others, which will cauſe *Whiteneſs* in Fea-

Feathers, Hair, &c. by not permitting of the *ſulphureous Particles* to expire, which give *Variety* of Colours[g]; thus we ſee in the *Cicatrization* of Wounds where the Skin is drawn together like a *Purſe*, and the *Pores* cloſed up, the Hair comes conſtantly *white*: thus the ſubtile *Veterinarians* procure *white Stars*, or other deſired *Marks* in the Fore-heads of their *Horſes*; and I have ſeen the Skins of *black* Grey-hounds powdered with *white*, or made *Ermyneſs*, by applying *Wood-ticks* to their Skins when young, both which are performed alſo by a *Cicatrization*, and cloſing the *Pores* of the Skin, thereby hindering the Exhalation of the *Sulphur* in thoſe parts.

15. Which will further appear from an Obſervation of my Lord *Verulam*'s concerning *Flowers*, whereof the *Whites* for the moſt part are more *inodorate* than other Colours: And this he makes out in many *Flowers*, as ſingle *white* Violets, the *white* Roſe, *white* July-flowers, &c. We find alſo, ſays he, that Bloſſoms of *Trees* that are *white* are commonly *inodorate*; as of *Cherry*, *Pear*, and *Plum-trees*: whereas thoſe of *Apple*, *Crab*, *Almond*, and *Peach-trees*, are bluſhy, and ſmell ſweet. The Cauſe whereof is, that the Texture of theſe *Plants* producing *white* Flowers (excepting ſuch as produce *white* Flowers only, as *Lillies*; or are extravagantly ſucculent, as the *white Satyrion*) is ſo very cloſe and fine, that it will not permit any *ſulphureous* Particles, which are alſo the Cauſe of *Smells*[h] as well as *Colours*, in any meaſure to *exhale*. Which poſſibly may be found true, if duly examined, in all ſorts of *Animals*; and if ſo, we hereby may be profitably inſtructed what *Beaſts* of each kind are leaſt offenſive, and fitteſt for the Converſation of *Men* or *Women*, eſpecially *Ladies*, who commonly have great Sagacity in Smelling, may hereby be directed in the choice of their *Melitæi* or *Lap-dogs*.

16. As for *pyed Birds* that are generally of another Colour, ſuch as *pyed Pheſants*, &c. the Caſe is eaſier, for ſuch are produced either by common colour'd *Hens* troden by a *white Cock-pheſant*, or *vice verſa*; which poſſibly may have happened alſo by our *white Linnet* whether Male or Female, or in any other *Birds* of any other *Species*, as we ſee it falls out in *Dogs* and *Horſes*, and moſt other *Animals*.

17. And this had been all concerning *Birds*, but that at *Witney*, *Anno* 1674. I met with an *Egg* about the Bigneſs of a *Pidgeon*'s, containing another imperfect one in it, given

[g] *Vid.* Williſium *de Ferment. cap.* 2. [h] *Idem in loco citato.*

me

me by Mr. *Hinton* the then Miniſter there, which ſeems to have been in the way toward ſuch an *Ovum in Ovo* as mentioned by the Learned Dr. *Harvey*, and ſhewn by him to that incomparable Prince, *Charles* the *Martyr*, and many others; *Vidi inquit* Ovum *perexiguum* (Fabricius *Centeninum vocat*, & *Noſtrates* mulieres *Gallo aſcribunt*) *cruſta tectum, intra aliud Gallinæ* ovum *majus, perfectum & cortice circumcirca obtectum, contineri* [i]. Juſt ſuch an *Egg* as this, pregnant with another, is preſerved in the Repoſitory of the *King* of *Denmark*, which was ſhewn by his Majeſty to *Tho. Bartholine*, as he teſtifies in his *Epiſtles* [k]; who alſo ſaw another in the Year 1669 [l]. And *Geo. Sebaſtian Jungius* met with another of theſe the nineteenth of *June*, 1671 [m]. which are Authorities enough (though more might be brought) to juſtify my mentioning the thing, though by ſome thought inconſiderable.

18. Yet before we take leave of the Inhabitants of the *Air*, we have ſomething worth notice concerning winged *Inſects*, and particularly of the feminine *Monarchy* of *Bees*, not only the *Prognoſticators*, but *Concomitants* of *Eloquence*: of their Prophetical Preſages of *future Eloquence*, we have Inſtances in *Plato*, *Pindar*, *Lucan*, and that eloquent Father of the Church St. *Chryſoſtom*, about whoſe Mouths, whilſt *Infants*, the *Bees* gathered, and dropt their *Honey*, thereby fore-telling thoſe *Rhetorical Endowments* they ſhould hereafter be poſſeſt of, which accordingly came to paſs.

19. But none of thoſe, ſays the induſtrious *Butler* [n], are more memorable than the *Bees* of *Ludovicus Vives*, who being ſent in the Year 1520. by *Cardinal Wolſey* to *Oxford*, to be publick *Profeſſor* of *Rhetorick* there, and placed in the *College* of *Bees* (*Corpus Chriſti* being ſo called by the *Founder* in his *Statutes*) was welcomed thither by a Swarm of *Bees*, which to ſignify the incomparable Sweetneſs of his *Eloquence*, ſettled themſelves over his *Head* under the Leads of his *Study* (at the *Weſt-end* of the *Cloyſter*) where they continued about 130 Years.

20. *The Truth of this Story appears as well by the general Voice of the* Houſe, *who have received it by Tradition, as by the ſpecial Teſtimony of a worthy Antiquary* [Mr. Brian Twine] *who affirmed* [to Mr. Butler] *that he had often heard his Maſter*, Dr. Benefield (*one of the publick* Profeſſors *of*

[i] *De Generat. Animalium, Exercit.* 10. *de Ovi cortice.* [k] *Epiſt. Cent.* 3. *Ep.* 42. *& Epiſt. Cent.* 4. *Ep.* 63. [l] *Miſcellanea Cur. Med. Phyſ. Acad Nat. Curioſorum, An.* 1. *obſerv.* 36. [m] *Ibid. An.* 2. *obſerv.* 250. [n] Hiſtory of Bees, *numb.* 59.

Divi-

Divinity) *who then had* L. Vives's *Chamber and Study; and* Dr. Cole (*then* Preſident, *and in* Q. Mary's *Days* Scholar *of this* Houſe) *to ſay as much, calling theſe* Bees, Vives *his* Bees.

21. *In the Year* 1630, *the Leads over* Vives *his Study* being pluckt up, [it then being the Study of Mr. *Gabriel Bridges*] *their* Stall *was taken, and with it an incredible Maſs of Honey: but the* Bees, *as preſaging their intended and imminent Deſtruction (whereas they were never known to have ſwarmed before) did that* Spring (*to preſerve their famous kind*) *ſend down a fair Swarm into the* Preſident's *Garden, which in the Year* 1633 *yielded two Swarms; one whereof pitched in the Garden for the* Preſident; *the other they ſent up as a new* Colony *to preſerve the Memory of this* Mellifluous Doctor, *as the* Univerſity *ſtiled him in a* Letter *to the* Cardinal. Thus far Mr. *Butler.*

22. And there *they* continued, as I am informed by ſeveral ancient Members of that *Society* that knew them, till by the *Parliament Viſitation*, in *Anno* 1648, for their Loyalty to the *King*, they were all, but *two*, turned out of their Places, at what time, with the reſt of the Inhabitants of the *College*, they removed themſelves, but no further than the *Eaſt* End of the ſame *Cloiſter*, where as if the *Feminine* ſympathized with the *Maſculine* Monarchy, they Inſtantly declined, and came ſhortly to nothing. After the Expiration of which ancient *Race*, there came, 'tis true, another *Colony* to the *Eaſt* Corner of the *Cloyſter*, where they continued till after the Return of his moſt Sacred Majeſty *Charles* II: but it not being certain that they were any of the Remains of the ancient *Stock* (though 'tis ſaid they removed thence to the firſt place) nor any of them continuing long there, I have choſe rather to fix their *Period* in the Year 1648, than to give too much Credit to Uncertainties.

23. And thus unhappily, after above Six-ſcore Years Continuance, ended the famous Stock of *Vives* his *Bees*, where 'tis pity they had not remained, as *Virgil* calls them, an *Immortale Genus* °. However, ſince they are now irrecoverably loſt, it would not I think be amiſs, if the *College* provided them another *Colony*; not that I think that Learned *Society* wants any ſuch Monitor of *Induſtry*, but that it ſeems but congruous, they ſhould always have by them the *thing*, whereof their whole Houſe is but the

° *Georgic. Lib.* 4.

Metaphor, the Founder calling it *Alvearium*, and the Students, *Ingenioſas apes, dies noctesque Ceram ad Dei honorem, & dulciflua mella conficientes, ad ſuam & univerſorum Chriſtianorum commoditatem.* And this I the rather perſwade, becauſe by the new Diſcovery of that excellent Method of *Bee-houſes* and *Colonies*, they are freed from moſt, if not all the Hazards, Charge, and Trouble that heretofore attended *them*: Not to mention the Advantage and Profit accrewing by them, which has always been judged ſo Conſiderable, that there have been ſeveral *Tracts* written and publiſhed full of Experiments, Directions, and Methods to be uſed in the Menage of theſe *Inſects*.

24. But none yet Extant that I know of comparable to what are practiſed by *John Lad* of *Over-Worton*, and *William Tayler* of *Warkworth*, who though a *Northamptonſhire* Man, has *Apifactories* in this *County*, who profeſs, (as I was informed by the Reverend Mr. *Clark*, then Rector of *Dreyton* near *Banbury*) 1. That they can take *Swarms* out of any *Stock* that is able, and neglects to *ſwarm*, without any Prejudice to the *Stock*. 2. That they can take *Honey* out of a *Stock* without that Hazard to the *Bees*, which (they ſay) the way propoſed by the *Author* of the *Colonies* is ſubject too. 3. That they can ſecure any *Stock* from the Invaſion of *Robbers*. 4. That they can ſo order an old *Stock*, that the *Bees* ſhall gather pure *Virgin* Honey. 5. If a *Stock* be in low Condition, they can preſerve and recruit it, ſo as it ſhall do well. 6. They can take away a *Queen* where there is more than one in a *Hive*, and place *her* in a *Stock* where the *Queen* is dead, or otherwiſe wanting, and by that means keep the *Subjects* together, which would elſe diſperſe. 7. If a *Queen* wants *Subjects*, they can draw out of ſeveral Stocks Supplies in what number they pleaſe, that ſhall ſettle under *her* Government. And theſe *Operations* they commonly practice, which becauſe profitable to *them*, they are unwilling ſhould be made too common, which yet they are ſo ingenious as not to deny to communicate to fit *Perſons* upon reaſonable *Terms*.

25. Of other flying *Inſects*, I have minded only the *Muſcæ aquaticæ*, ſuch as are generated in the Waters, and come of *Cad-worms*, and therefore called by *Johnſton*, *Phryganides*[p], *quod e Phryganio Mouſeti*[q] (the *Caddis* of the

[p] *Hiſt. Nat. de Inſectis, lib.* 1. *tit.* 2. *cap.* 2 *art.* 2. *punct.* 4. [q] *Inſect. ſive Min. An. Theat. cap.* 12. *de Muſcarum uſu.*

Engliſh

Engliſh) *ortum habeant:* Nor ſhall I venture to deſcribe above *one* of theſe neither (and that only as a *Specimen* of what I intend of the *reſt*, as faſt as I can compaſs the *Method* of their Productions) *which* I think I may call *Muſca e Phryganio ſaxatili*, there being a *Stone*, as well as a *Stick-caddis*, or *Cad-worm*; in the Generation of which, *Nature* ſeems to Obſerve the following *Method*. Firſt, there appears on the *Stone* to which many of them ſtick, as in *Tab.* 10. *Fig.* 4. only little *Bubbles* of a glutinous Nature, like the *Spawn* of *Frogs*, which by the Deſcent of *Gravel* and *Sand* that *ſtick* to *them*, are formed into *Stone-caddis* Houſes, including the *Animal* therefore called the *Stone-caddis*; which after it has continued in its *Rough-caſt-ſtone* Houſe its due time, gets off the *Stone*, either to the Bank of the *River*, or climes up ſome *Reed*, where alſo leaving its *Houſe*, it becomes a *Fly*, ſomewhat like in ſhape to the *Muſcæ* δικέρωτες, or *Bipiles Mouſeti* [r], that come of the *Stick-caddis*, only it is ſhorter, and wants both the *Antennæ* and *forked briſtly* Tail; but moſt of all like the *Brieſe*, only the *Brieſe* is all *Grey*, and this has a *Black* Head and *dark Brown* Wings; See its Form, *Tab.* 10. *Fig.* 5.

26. Other *Water-flies* there are that come of ſuch *Worms*, called *Cock-ſpurs*, *Rough-coats*, *Pipers*, *&c.* of which no more at preſent 'till further Obſervation; but that though at laſt they come to be *flying Inſects*, yet at firſt they are all of them *Water Animals*, which puts me in mind of proceeding next,

27. To the *Fiſhes*, whereof we have a ſort in the River *Iſis*, that we call here a *Pride*, of the long cartilaginous ſmooth kind, concerning which, *Authors* ſeem ſo obſcure, that I know not whether it be deſcribed at all; or if it be, it is done ſo Imperfectly, that perhaps it may be acceptable if I contrive another. The *Fiſh* the moſt like it of any I can find, is the *Lampetra parva fluviatilis* of *Rondeletius* [s], rendered by Dr. *Charleton* [t] and Dr. *Merret* [u], the *Stone-grig*: it having a Mouth cut neither perpendicularly downward, nor tranſverſly, but hollowed, as it were between two Cheeks, without an under Jaw, after the manner of *Leeches*; on the top of its Head it has *one*, and on each Side *ſeven* Holes that ſupply the place of *Gills*; and under the Belly a ſmall *line*, reaching from the Mouth to the *Exit* of its Excrement; it moves by a *winding impulſe* of its Body, with.

[r] *Idem. cap.* 11. [s] *De Piſcibus fluviatil. cap.* 24. [t] *Onomaſt. Zoicon. tit. Piſces. cap. Lævium.* [u] *Pinax. rer. Nat. Britan. p.* 188.

out the help of any other Fins but the *pinnulæ* at the Tail, by which it ſteers its Courſe; and thus far it agrees with the *Lampetra fluviatilis*.

28. But though they agree in ſome particulars, they differ in as many, our *Pride* being *ſtreaked* from the top of its Back down to the afore-mentioned *line* at the bottom of its Belly, with lines of a diſtinct Colour from the reſt of its Body, like the *Pricka-marina* of *Aldrovandus**, whereof the *Lampetra* is not ſaid to have any: Beſide the two *pinnulæ* of the *Lampetra*, whereof one ſtands on the Top of its *Tail*, and the other a little higher on the *Back*, ſome ſpace interceding; the *Pride* has another underneath its Tail, joyning with the other from above at the Tip, making the whole Tail to end like the *Head* of a *Spear*. Moreover, the Eyes of the *Pride* are very obſcure, and not ſuch plain round ones as are given the *Lampetra*, not only in the Deſcription, but Cut of *Rondeletius*: And though it have a *Hole* in its *Head*, yet it ſtands not as *Rondeletius* deſcribes it in the *Lampetra*, juſt in the Middle between the *Eyes*, but more forward in the Extremity of the *Head*, near the upper Lip; all which may plainly be ſeen *Tab.* 10. *Fig.* 6, and 7. Whence 'tis eaſy to conclude, that either this *Fiſh* has not been deſcribed at all, or ſo very meanly, that there was almoſt a Neceſſity of giving another, either of which I ſuppoſe will excuſe this Attempt.

29. Beſide the *Pride*, which we think undeſcribed, we have another ſort of *Fiſh* plentiful in the *Cherwell* (ſcarce ever found in *Iſis*, but below the place where the *Rivers* joyn) that is more certainly ſo; and that a *Fiſh* of the *ſquammous* kind, which they call a *Finſcale*, ſomewhat like a *Roach*, only the *Belly-fins*, and the ſingle *one* at the *exit* of the Excrement, and *thoſe* at the Tail are much *redder* than thoſe of a *Roach*; it has alſo a full *black Eye*, encompaſſed with a *yellow Iris*, whereas that of a *Roach* is *red*; it is alſo a much deeper and thinner *Fiſh*, but yet neither ſo deep or thin as a *Bream*; from which alſo it differs, not only in the *Redneſs* of its *Fins*, but in that the *ſingle Fin* placed next the *exit* of its Excrement, is not continued to the Tail as it is in the *Bream*: Its *Fins* at the *Gills* are much *whiter* than the reſt, and that upon the Back of a *dirty bluiſh* Colour: its *Scales*, eſpecially near the Back, are of a *greeniſh yellow* Colour, on which from the *Gills* to the Tail there runs a crooked Line of *Points*, one on each *Scale*,

* Aldrovand. *de Piſcibus*, *lib.* 4. *cap.* 13.

as in *Tab.* 10. *Fig.* 8. The *Fiſhes* moſt like it of any deſcribed, are the *Bollerus* or *Bordeliere*, and the *Phoxini*, *Roſe* or *Roſiere* of *Rondeletius*[x]; but that they cannot be the *ſame* is plain from hence, in that the *Bordeliere* is confeſt to have no *Teeth*, whereas the *Finſcale* has *Teeth* as large as a *Roach*; and the *Phoxini* never to be found without *Spawn*, or to exceed *half a Foot* in Length, whereas I have ſeen *Finſcales*, even in time of Year when one might well have expected it, without any *Spawn*; and ſome of them (particularly the deſcribed one, *Fig.* 8.) from the *Mouth* to the *Fork* of the Tail a *Foot long*, and four Inches and a half in Depth, beſide many other *Differences* that might alſo be brought.

30. Which is all I have met with *extraordinary* amongſt the *ſquammous* kind of *Fiſh*, but that there is a ſort of *Chub* peculiar to the *Evenlode*, ſome ſay exceeding, all equalling the *Pearch* or *Tench* in Goodneſs. And that at *Lillingſton-Lovel*, about ſix Years ſince were taken two *Salmons*, one ſomewhat above, the other ſomewhat under a *Yard* in Length, in a ſmall *Brook* (a Branch of the *Ouſe*) that a Man may ſtep over, little leſs (as the *River* runs) than two hundred Miles from the *Sea*. How theſe *Salmons* ſhould come up ſo *high*, has been much wonder'd at by *ſome*, ſince ſo many *Mills* and *Locks* ſtand in the way on this *Rivulet* to hinder them: but to ſuch as have either ſeen, or but read of the *Salmon-leap* at *Kilgarran* in *Pembrokeſhire*[y], or at *Waſſerfal* in the *Rhine*, which I ſuppoſe is much greater, and that they run up that *River* above five hundred Miles to the Lake of *Zugh* in *Switzerland*[z], perhaps it may not appear ſo ſtrange; eſpecially if it be alſo conſidered, that our *Mills* and *Locks* have moſt of them *back Streams* and *Laſhers* to carry off the Water when it is too plentiful, over which the *Leap* is but very inconſiderable.

31. I have met with alſo ſomewhat remarkable of our *freſh-water Shell-Fiſh*, and particularly of a ſort of *Gammarus*, or *Crey-Fiſh*, found in *Salford* Stream, that does not boil to a *brisk red* Colour, but at beſt of a *dirty yellowiſh* Red, which I ſuppoſe muſt be attributed to the Badneſs of the Water, infected with ill Qualities, perhaps by the *Moor* through which it paſſes, which is very agreeable to one of *Cardan*'s Signs of good Water: *Ubi aqua bona* (ſays he) *Aſtaci debent eſſe valde rubri, cum coquantur*[a]: whence 'tis

[x] Rond. *de Piſcibus lacuſtribus, cap.* 8. *& de fluviatilibus, cap.* 28. [y] Camden *in Pembr. & Cardigan.* [z] *Mr.* Ray's *Obſervat. Topograph. &c. p.* 430. [a] *In* Hippoc. *de Aere, Aquis & Locis, lib.* 2. *Lect.* 14. *in text.* 2, 3.

eaſy

eaſy to conclude (if the *Symbol* be truly put) that where they boyl of a *different* Colour, the Water muſt needs be *naught*.

32. I found alſo in Ponds at *Bradwell*, *Hanwell*, and *Shotover-Foreſt*, as well as in *Rivers*, the *Mytilus fluminum maximus ſubviridis*, whereof I examined ſeveral in hopes of the *Pearls* to be found in them, mention'd by Sir *Hugh Plat* in the *Appendix* to his *Jewel-houſe* of *Art* and *Nature*[b]; but I could not meet with any with *craggy rough* out-ſides, in which it ſeems they are only found (*ours* being all of them *ſmooth*) and ſo loſt my Labour; but I hear they are to be met with in *Buckingham-ſhire*, *Montgomery-ſhire*, and *Shrop-ſhire*, as Sir *Hugh* alſo informs us, where more fully concerning them, if this *Deſign* be encouraged, and I live to *travel* and *examine* the Productions of theſe *Counties*.

33. We have alſo in great plenty all the *Cochleæ fluviatiles*, or Freſh-water Snails mention'd by Dr. *Liſter*[c], concerning which I can add nothing, but that its *Cochleæ faſciatæ ore ad amuſſim rotundo* (which is ſomewhat ſtrange) ſeem to be all *viviparous*, containing their young within their Bodies, cover'd over with *Shell* before their Excluſion, as I found it upon Examination in great Numbers of *them*; and that I found moſt of them this *Summer* ſwimming above Water, dead and ſtinking, which whether to be aſcribed to the *Drought*, or any other *Cauſe*, I am yet uncertain.

34. Amongſt the *Cochleæ marinæ*, and *fluviatiles*, I find all the *Naturaliſts* to treat of the *Cochleæ terreſtres*[d], though I think they ſhould rather be put under the Title of *Reptils*; whereof we have one *ſort* met with in *Cornbury Park* by Mr. *Jacob Bobart*, the preſent *Botanick Profeſſor* in *Oxford*, that I find not deſcribed in any of our *Zo-ographers*: in Shape (though not ſo big) like the *Turben magnus* of *Rondelet*[e], or the twelfth *Turbo* of *Aldrovandus*[f], having a long *Turbinated Shell* rough and unequal, by reaſon of many protuberant Ribs thwarting the *helical* Turns of the *Shell*, as in *Tab.* 10. *Fig.* 9. which was found alive and creeping on the Graſs, but what it ſhould be I cannot divine, unleſs the ſame with the *Cagaroles* of *Spain* and *Montpellier*, mentioned by *Aldrovandus*[g], which he ſeems to deſcribe to be a *Cochlea terreſtris* of this Figure but gives no Cut of it.

[b] *Sir* Hugh Plat's *App. p.* 221. [c] *Philoſoph. Tranſact. numb.* 105. [d] *Vid.* Geſnerum *de Cochlearum terreſt. diverſ. ſpecieb. lib.* 4. *de Aquatil.* & Aldrovandum, *lib.* 3. *de Teſtaceis, cap.* 30. [e] Rond. *de Teſtaceis, cap.* 16. [f] *Lib.* 3. *de Teſtaceis, cap.* 30. [g] *Idem de Teſtaceis, cap.* 31.

45. Of

35. Of other *Reptils* we have little to ſay, but that in the *Lordſhip* of *Blechington*, and all the more *Northern Parts* of *Oxfordſhire*, no *Snakes* have been ever or very rarely ſeen, in ſo much that I met with ſeveral ancient People about *Deddington* and *Banbury* that ſcarce ever ſaw a *Snake* in their Lives, at leaſt not in that *Country*. And at *Blechington* 'twas confidently believed, that a *Snake* brought from any other place, and put down there, would inſtantly dye, till I made the *Experiment* and found no ſuch matter: Whereupon I got leave (in the Abſence of the *Family*) to incloſe my *Snake* in the *Court*, before the Right Honourable the Lord *Angleſey*'s Houſe, to ſee what time would produce, leaving the *Gardener* in truſt to obſerve it ſtrictly, who found it indeed, after three Weeks time, *dead*, without any ſenſible external hurt.

36. How this ſhould come to paſs, is a *Queſtion* indeed not eaſy to determin, but certainly it muſt not be aſcribed to the *Taliſmanical Figure* of the Stone *Ophiomorphites* to be found about *Adderbury*, and in moſt *blue Clays*, whereof there are plenty in this *Country*. Since theſe are to be met with about *Oxford* too, and many other places, where there are Snakes enough. Beſide, we are informed by *Cardan*[h], that *Albertus Magnus* had a Stone, that being naturally mark'd with the Figure of a *Serpent*, had this no leſs admirable than contrary *Virtue*, that if it were put into a place that was haunted with *Serpents*, it would draw them all to *it*. Much rather may we ſubſcribe to the Cauſe aſſigned by *Pliny*[i], who ſeems confidently to aſſert, that the Earth that is *brackiſh*, and ſtandeth much upon *Saltpetre*, is freer from *Vermin* than any other. To which we may add (if need be) *Sulphur* and *Vitriol*, whereof there is plenty in theſe parts of the *County*; but whether by *one*, *two*, or *all* theſe, though we dare not pronounce, yet that it is cauſed by ſome ſuch *mineral Steam* diſagreeable to the *Animal*, I think we may be confident.

37. Amongſt the *Inhabitants* of the *Earth*, come we next to the *Quadrupeda*, whereof ſome are μονόνυχα, whole Hooft, ſuch as *Aſſes*, *Mules*, *Horſes*, of which laſt kind I met with three remarkable for their *Age*; one at *Souldern*, another at *Sherbourn*, and a third at *Aſton-Rowant*, each reported to be about forty Years old apiece. And amongſt the *Quadrupeda* δίχηλα, or cloven-hooft Beaſts, there was a *Hog* at *Upper-Tadmerton*, of as ſtrange a *Stature* as they

[h] *De Subtilitate, lib.* 7. [i] *Nat. Hiſt. lib.* 17. *cap.* 4.

were

were of *Age*; being fed by one *Pargiter* to ſo extravagant a Greatneſs, that he came at laſt to near 13 Hands high, as it was teſtified to me by the Reverend Mr. *Whateley*, then Rector of the place, and ſeveral others who had carefully meaſured him.

38. Of *four footed Beaſts* that chew the *Cud*, they have a ſort of *Sheep* eſteemed in this Country for their conſtantly bearing *two Lambs* at a time, whence they have juſtly obtained the name, though ſomewhat an improper one, of *double Ews*. They are ſaid to have been firſt brought into this Country by the Worſhipful *James Uxley* of *Darnford* Eſq; where I hear they are preſerved by the Right Worſhipful Sir *Nicholas Pelham* Knight, who with one of his *Daughters* (a *Co-heireſs*) enjoys that *Eſtate*. I heard of them alſo about *Newington* and *Dorcheſter*, and ſome other Places here and there in the County.

39. But there are much ſtranger *Sheep*, though perhaps not ſo profitable, at *Ricot* in the Park of the Right Honourable the Lord *Norreys*, brought hither from ſome other Parts of *England* or *Wales*, but now breeding *here*: Of which, ſome of them at firſt had ſix or eight Horns apiece, but the Number upon Mixture of their Generation with other *Sheep* is ſince diminiſh'd. However, there remain ſtill *two* of them with very *ſtrange Heads*, having each *four Horns*; one of them with two larger *ones* iſſuing from the top of its Head, bending forward, and two ſide *ones* coming out from under its Ears, and bending round towards its Mouth, as in *Tab.* 10. *Fig.* 10. And the other having two large *Horns* ſtanding pretty upright on its Head, and two ſide *ones* proceeding from under the Ears like the former, and bending round to the Cheeks, into which they would grow (and ſo in the whole *kind*) were they not prevented by being timely cut off, as in *Tab.* 10. *Fig.* 11.

40. And as theſe are Remarkable for their many *Horns*, there was another *Sheep* once there, that excelled all the reſt, in its being a *Unicorn*, having a ſingle Horn growing almoſt in the middle of its Fore-head, 21 Inches long, with annulary *Protuberancies* round it, and a little twiſted about the middle, as in *Tab.* 10. *Fig.* 12. There was, 'tis true, another little *Horn* grew on the ſame Head, but ſo inconſiderable, that it was hid under the Wool. This Head is ſtill preſerved by the Honourable the Lord *Norreys*, and is now to be ſeen nailed up at *Ricot* on the North-ſide of the *Hall*.

41. To

41. To which may be added a *Cow* of Mrs. *Dunche*'s, of *Newington* near *Dorcheſter*, more ſtrangely Prolifick, than the Sheep are ſtrange in Form, that whileſt a *Calf*, before ſhe was eleven Months old produced another: which *Animals* carrying their Burthen no leſs than *nine Months*, we muſt either admit that ſhe took *Bull* at about ten or eleven Weeks old, or that the *Cow* her ſelf was at firſt brought forth pregnant of another, as *Ariſtotle* reports a ſort of *Mice* commonly are in a certain place in *Perſia*, ἐν δὲ Περσικῇ ἐν τινὶ τόπῳ ἀναχζωμένων μυῶν, τὰ θήλεα ἔτι κύοντα φαίνεται, i. e. *That in female Mice diſſected, the female Off-ſpring was found pregnant with others* [k]. The ſame again is reported by *Claudius Ælian* of the very ſame *Animals*, near the *Caſpian Sea* [l]. And *Ariſtotle* further acquaints us, that the Fiſh *Phoxini* have Spawn when they are very little, μικροὶ ὄντες φοξῖνοι κυήματα ἔχουσι are his very Words [m], in ſo much that *Rondelet* adds, *ut periti Piſcatores cum ovis naſci affirment* [n].

42. We are informed alſo, that the ſame ſometimes happens in more perfect *Animals*, by *Joan. Baptiſta Nierembergius*, who tells us of a certain *Mare* in *Spain* that brought forth a *Mule*, great of *another* [o]. And the Learned and Obſerving *Bartholin* [p], yet further acquaints us, that in the Pariſh of *Uleſlovia* near *Neoburg* in *Fionia*, *Joan* the Wife of *Nocholas Peter*, a Husbandman of that *Country*, was deliver'd of a *Female Still-born* Child, pregnant with another *Female*, duly placed in the *Womb* about a Span in Length, with all its Parts ſo perfect, that the *Grand-mother* (who diſſected the *pregnant Infant*) believed it had been living.

43. But what yet comes nearer to the Buſineſs, we are inform'd by *David Spilinbergerus*, Phyſician of *Leutſchovia*, that in the Year 1663, there was a *Cow* in *Hungary* that brought forth a *Calf* with a great Belly, wherein there was found another *Calf* with all its Limbs perfect [q]. How theſe things ſhould come to paſs, the Learned *Bartholin* gives us his Conjecture, *viz.* that in ſuch *Productions* as theſe three laſt, *Nature* at firſt intended only *Twins*, and that by ſome Error in her Procedure, *one* of each of *theſe*, might be thruſt into the Belly of the *other* (as I ſuppoſe it happened in ſome meaſure in the Caſe of *Lazarus Colloredo*

[k] *Hiſt. Anim. lib. 6. cap. ult.* [l] περὶ ζώων, *lib. 17. cap. 17.* [m] *Hiſt. Anim. lib. 6. cap. 13.* [n] Rond. *de Piſcib. fluviatil. cap. 28.* [o] *In Hiſt. Nat. lib. 6. cap. 2.* [p] *Hiſt. Anatom. & Med. rar. Cent. 6. Hiſt. ult. & Epiſt. Med. Cent. 3. Epiſt. 28.* [q] *Miſcellan. Curioſa Med. Phyſ. Germaniæ, An. 1. Obſerv. 36.*

and his Brother *Baptiſt* [r]) over which we may eaſily allow a Skin to be ſuperinduced. But that ever any ſuch ſecond *Fœtus* was brought into the World, living after the firſt, we have no *Inſtance*, except this *Calf* of *Newington* may paſs for *one*, which is wholly left to the *Reader*'s Judgment. For my part, I am rather inclined to believe that the *Cow* might take *Bull* at ten or eleven Weeks old, that being the leſſer Wonder of the two, eſpecially having received News out of the Country from an Intelligent *Lady*, that the thing is not ſo ſtrange, but poſſible enough.

44. Hither alſo muſt be referr'd the three *Calves* brought forth by a *Cow* at one time, that I met with at *Hardwick* not far from *Biſſeter*, which though a Production not frequent, yet is as much Remarkable in that they became all grown *Cattle*, and ſo ſtrangely *alike*, that their very *Owner* himſelf ſcarce knew them aſunder, much leſs could I, though I obſerved them ſtrictly: whence I was firmly convinced, that *Similitude* was a Concomitant as well of *Tergemini* as *Twins*, and held as well in *Brutes* as *Rational Animals*.

45. Nor can I paſs by without Admiration, the *Deer* of *Cornbury Park*, which before His *Majeſty*'s wonderful Reſtoration, being (in part at leaſt) turned into a *Cony-warren*, the *Deer* upon it had all *Dwarf-heads*, the moſt of them irregular, as in *Tab.* 10. *Fig.* 13. but if any of them were uniform, as in *Tab.* 10. *Fig.* 14. yet they were ſtill far ſhort of growth, ſeldom exceeding 8 or 10 Inches long, though the *Deer* themſelves were well enough grown, and warrantable; the two that bore thoſe *engraven Heads*, being both of them two Years a *Buck* at leaſt, and in all other reſpects well enough liking: which yet, as ſoon as the *Warren* was deſtroyed by the *Proprietor*, the Right Honourable the Earl of *Clarendon*, came again to have as *fair Branched-heads* as any *Deer* whatever in the adjoining Forreſt: Which *ſtrange Alterations* I cannot gueſs to proceed from any other *Cauſe* than the Infection of the *Graſs* by the *Urin* and *Crotizing* of the *Conies*, which being hot and dry muſt needs abate the Moiſture of the *Deer*, which ſupplyed mattter for the *fair Heads* wherewith before and ſince they have been as well adorned, as any of their *kind*.

46. Amongſt the *Quadrupeda* πολυδάκτυλα, or *Claw-footed Animals*, I met with nothing ſo ſtrange as the *Rib* of a *Dog*,

[r] Tho. Barthol. *Anatom. Med. rar. Hiſt.* 66.

or

or ſome ſuch like *Beaſt*, ſet in a *Bone* interceding two other *Ribs*, that the *interceſtal Parts* were filled with it, as in *Tab.* 10. *Fig.* 15. in ſo much that if all the *Ribs* were thus qualified, the whole *Cheſt* of that *Animal* muſt needs be *one Bone*. This was found about *Oxford*, and given me by the Right Reverend Father in God, *Thomas* late Lord Biſhop of *Lincoln*. And there are *two* other *Ribs* joined in like manner, to be ſeen in the *Repoſitory* in the *Medicine School*. But I find this has happened not only to *Beaſts*, but ſometimes to *Men*, who have been always remarkable for their *prodigious Strength*; whereof in their reſpective places as I meet them hereafter.

ADDITIONS *to* CHAP. VII.

§. 3. *Wood-cracker.*] *Quære* whether this be the *Picus Martius* of Mr. *Ray* mentioned in the *Phil. Tranſ.* p. 1043, 1044. numb. 172.

§. 22. Here it may be remember'd, that a Swarm of *Bees*, *An.* 1685. came to *Univerſity-College*, and ſettled upon a Bough held in a Scholar's Hand in the *College Quadrangle*, whence they were Hived and afterwards ſet in the *Maſter*'s Garden.

§. 29. *Finſcale.*] This ſays Mr. *Ray* is the *Orfus Germanorum*, Lib. 4. *de Piſcibus*, cap. 7. but I think not, for he himſelf numbers the *Orfus* amongſt the *Edentuli*, whereas the *Finſcale* has Teeth: And ſome tell us that *Breams* and *Roach* will mix their *Eggs* and melt together, whence a baſtard ſort of *Breams*, that never come to be either large or good, but numerous, which perhaps may be *Finſcales*, ſee *Iſaac Walton*'s compleat Angler.

§. 35. There are no *Snakes* near *Badminton* in *Gloceſterſhire*: The Cauſe is the Barenneſs and Coldneſs of the *Land* thereabouts, for *Snakes* are bred out of Rich, Fat, Hot Mould and Mud (whence we commonly find them about Ditches, and Low, Rich, Shady Grounds lurking under long Graſs) of which this Country affords no great plenty. Beſides it being an open Country, it wants that Shade and Shelter they delight in. *Brit. Bacon.* p. 73.

§. 39. Having each four Horns.] There are *Four-horned Sheep* in *Cornwall*. Brit. Bacon. *p.* 13.

§. 46. The *Rib* of a *Dog*, or ſome ſuch *Beaſt.*] This ſeems rather to be the *Rib* of a *Tortoiſe*, whoſe *convex Shell* within is on both Sides ſtrengthned with ſuch *Ribs* ſet within the Body of the *Shell*. See the *Repoſitory* of the R. S. and the *Muſæum* at *Oxford*.

CHAP. VIII.

Of Men and Women.

THE Subject Matter of this *Chapter* being very narrow, extending it ſelf only to *Man*, whom God created *Male* and *Female*, and them only in his own *Image*, little lower than the *Angels*: It cannot be expected, that the *Methods* of the other *Chapters* can be obſerved here, there being no new *Species* of *Men* to be produced, or not ſufficiently noted already. All therefore that remains concerning them to be handled here, will be only the unuſual *Accidents* that have attended them, whereof, though I have not met with very *many* in this *County*, yet they are enough to be diſtributed into ſuch as have attended them,

either { *at or before their Birth.*
in their Courſe of Life.
in their Death or Grave.

2. Before the *Birth* of *Man*, the *Vagitus uterinus*, or crying of the Child in the *Mother*'s Womb, is not ordinarily to be met with, though we find many Examples of the thing in *Authors*[f], to which may be added one more that lately happened at *Heyford-Purcel*, where there was a Child cryed very audibly in its *Mother*'s Womb ſometime before the *Birth*. For the performance of which Action, whether there be a Neceſſity of the *Infant*'s having Reſpiration whilſt included in the *Amnion*; or whether it may not be done without it? let the *Phyſicians* diſpute: The matter of Fact ſufficeth me at preſent, that there was ſuch a thing, the People being frighted with it, and expecting ſome Calamity ſhould ſoon attend ſuch a *Prodigy*, pernicious (forſooth) not only to the *place* where heard, but to the *State* it ſelf. Whereas the Learned *Bartholin* more rightly notes, that the Ruin of *Kingdoms* depends rather on the Wickedneſs of the People, living in Contempt of *God* and his *Laws*, than any ſuch *Vagitus*; which portends nothing but Happineſs to the *Infant*, the *Mother*, and *State* it ſelf: To the *Infant*, in that it is an *Index* of its

[f] Tho. Bartholin. *Hiſt. Anat. rar. Cent.* 1. *Hiſt.* 1.

Strength,

Strength, and Perfection of *Organs*; To the *Mother*, in the Certainty that her Child is living, and likely to promote its own *exit*; To the *State*, which is likely to be bleſt with an *able Subject*: the *Vagitus* being nothing but ſuch an *Io Triumphe*, as *Livy*[t] reports was made by the *Infant* in the *Mother*'s Womb in *Marrucinis*, *Q. Fabius Maximus* being the fourth time, and *M. Marcellus* the third time *COSS.* So that if any thing amiſs fall out after ſuch *Vagitus*, it muſt be imputed rather to Chance than Deſign of *Nature*: Let us but mend our *Lives*, and no ſuch Matters can hurt us.

3. In the *Birth* of *Man* it is equally ſtrange, that the *Pangs* of the *Woman* in the Excluſion of the Child have ſometimes affected the *Abdomen* of the *Husband*, which to ſuch as have experimented the Secrecy of *Sympathies*, and underſtand the Subtilty and Power of *Effluviums*, perhaps may not ſeem difficult: But that the *Man* ſhould ſometimes ſuffer ſuch *Pains*, whilſt the *Woman* is well, and before ſhe is in *Labour*, is a *Problem* I fear beyond all Hopes of *Solution*. And yet that this has happen'd to ſome *Perſons* in *Oxford* is very certain, and that to knowing *ones* too, very unlikely to be deceived, and of unqueſtionable Veracity: whereof *one* of them told me (*whom* I enquired of more particularly concerning *them*) that they came upon *him* when he little thought of his *Wife*, and that the *Pangs* were very odd *ones*, ſuch as he never felt in his Life; not like any *Griping* in the *Guts*, but lying in the *Muſcles* of the *Abdomen*, which yet he ſhould never have thought to have had Relation to his *Wife*, had they not ſuddenly, and beyond Expectation ceaſed, as ſoon as his *Wife* began to be in *Labour*. Which makes much for the Credit of a Relation of the *German Virtuoſi*[u], concerning one *Faber* of *Buxovil* in *Alſatia*, who conſtantly acted the part of his *pregnant Wife*, being taken with *Vomitings*, and ſuffering thoſe inordinate *Longings* that uſually attend *Women* in that Condition, his *Wife* all the while ſuffering no ſuch *Inconveniencies*.

4. That ſuch *Symptoms* ſhould be thus tranſlated from the *Woman* to the *Man*, the *Woman* remaining well and undiſturbed, Dr. *Primiroſe*[w] thought ſo irrational (upon account that *natural Agents* firſt work on the *neareſt* Objects, and then on the *remoteſt*, and that therefore a *Woman* muſt needs be firſt affected with her own *noxious* Humours) that

[t] T. Livii *Hiſt. ab Urbe Cond. lib.* 24. [u] *Miſcellania Curioſa Med. Phyſ. German. An.* 2. *obſerv.* 215. [w] Jac. Primiroſii *M.D. de vulgi erroribus, in Med. lib.* 2. *cap.* 13.

he

Perſons to be very low of Stature, when either their Bodies are awry, or ſome of their Parts diſproportionable to the reſt.

10. And amongſt ſuch *Accidents* as theſe, we may reckon a ſtrange *Diſeaſe* that befel *Mary* the Daughter of *John Collier* of *Burford*, who out of the Corners of her *Eyes* excluded a ſort of *congealed* Matter, which after ſome time turned into a *ſtony* kind of *Subſtance*, not unlike the *Stones*, as they were deſcribed to me, that ſometimes come forth of the Tumor called *Atheroma*: which I therefore gueſs to have been only a more exalted kind of *Ægilops*, or *Fiſtula Lacrymalis*, and not to have been cauſed by *Faſcination*, as *Lachmund* [b] thinks the *Stones* were that came forth of the left Eye of *Margaret* the Daughter of *Conrad Brandis* of *Banteln*, ſhe being cured of the *Diſeaſe* by that eminent *Oculiſt* Dr. *Turbervil* of *Sarum*.

11. Yet a much ſtranger *Accident* than *that* befel one *Rebeckah Smith*, the Servant-maid of one *Thomas White* of *Minſter-Lovel*, who being of a robuſt Conſtitution, tho' *ſhe* ſeldom eat Fleſh (it ſcarce agreeing with her) and above 50 Years of Age; after ſhe came from the *Communion* on *Palm-ſunday*, *April* 16th *Anno* 1671, was taken with ſuch a Dryneſs in her Throat, that ſhe could not ſwallow her *Spittle*, nor any thing elſe to ſupply the Decays of *Nature*: and in this Caſe ſhe continnued without eating or drinking, to the Amazement of all, for about *ten Weeks*, *viz.* to the 29*th* of *June*, being both St. *Peter*'s, and *Witney-fair* Day: by which time being brought very low, her *Maſter* enquir'd and found out a *Perſon* who gave him an *Amulet* (for it was ſuppoſed *ſhe* was bewitch'd) againſt this *Evil*; after the Application whereof, within two or three Days time (though I dare not ſuppoſe there was any dependence between the *Medicin* and *Diſeaſe*) ſhe firſt drank a little *Water*, then warm *Broaths* in ſmall Quantities at a time, and nothing elſe till *Palm-ſunday* again *twelve Months* after, when ſhe began to eat Bread and other Food again as formerly ſhe had done, and arriv'd to above the Age of Sixty: *Thomas White* and his Wife, who were all that lived in the Houſe with her, did confidently aſſert (for they carefully obſerved) that they did not believe ſhe ever took any thing in thoſe *ten Weeks* time, nor any thing more all the *Year* following but what was above mentioned: wherein I think they might the rather be credited, becauſe there was never any *Ad-*

[b] Fred. Lachmundi, Ὀρυκτογεω. *ſect.* 3. *cap.* 22.

vantage

vantage made of this *Wonder* which argues it clear of all *Juggle* or *Deſign*.

12. Concerning the Death of *Women*, we have two as remarkable *Examples*, as any perhaps to be met with in *Hiſtory*, both of them being confirmations of what *Pliny* ſays of them, that they much more frequently *Revive* after they have been reputed Dead, than *Males* do *, whence doubtleſs alſo the *Proverb*, *Mulieri ne credas, ne mortuæ quidem*. Of which recoveries of the *Female* Sex rather than the *Male*, the ſame *Pliny* offers us a *Natural* Reaſon, but I think fit to wave it, eſpecially ſince the *reviviſcence* of *Anne Green*, innocently condemned to Dye, and executed at *Oxford* for the Murther of an *abortive* Infant, is rather aſcribed to the *Juſtice* of *Heaven*, than to the ſtrength or other conveniencies of *Nature* for ſuch purpoſe in *Women* rather than *Men*, though it muſt alſo be allowed, that *God* Himſelf makes uſe many times of *Natural* Means in the production of the moſt wonderful, and moſt amazing *Effects*. The *Hiſtory* whereof as it is taken out of a *Chronicle* of the late *Civil Wars*, by *James Heath* Gentleman [c], and the continuation of the *Hiſtory* of the *World*, by *Dionyſius Petavius* [d], with ſome few Additions and Alterations, take as followeth.

13. In the Year 1650. This *Anne Green*, being a Servant-maid of the Right Worſhipful Sir *Thomas Read* of *Duns-Tew* in *Oxford-ſhire*, was gotten with Child by ſome *Servant*, or other of the Family (as *ſhe* conſtantly affirmed when *ſhe* had little reaſon to lye) and through over-working *her ſelf* in turning of *Mault*, fell in Travel about the *fourth* Month of her *time*: But being but a Young Wench, and not knowing what the matter might be, repairs to the Houſe of *Eaſement*, where after ſome ſtraining, the *Child* (ſcarce above a Span long, of what *Sex* not to be diſtinguiſhed) fell from *her* unawares. Now preſently after, there appearing ſigns of ſome ſuch matter in the *Linnen* where ſhe lay, and *ſhe* before having confeſt, that ſhe had been guilty of what might occaſion her being with Child, a ſearch inſtantly was made, and the Infant found on the Top of the *Ordure*.

14. Whereupon, within three Days after *her* Delivery, *ſhe* was conveyed to the *Caſtle* at *Oxford*, where forthwith (an *Aſſize* being purchaſed on purpoſe) ſhe was Arraigned

* *Hiſt. Nat. lib.* 7. *cap.* 22. [c] Hiſtory of the Civil Wars of *England*, *Scotland* and *Ireland*, in *Anno* 1650. [d] *Append. ad Hiſt.* D. Petavii, *in Anno* 1650.

before Serjeant *Umpton Croke*, then living at *Marſton*, who ſat as *Judge* by a Commiſſion of *Oyer* and *Terminer*, and by *him* ſentenced to be Hanged; which was accordingly executed on the fourteenth of *December* in the ſaid *Caſtle-Yard*, where ſhe hung about half an Hour, being *pulled* by the Legs, and *ſtruck* on the Breaſt (as ſhe her ſelf defired) by divers of her *Friends*; and after all, had ſeveral ſtroaks given her on the Stomack with the But-end of a Soldier's Musket. Being cut down, ſhe was put into a *Coffin*, and brought away to a Houſe to be *Diſſected*, where when they opened it, notwithſtanding the *Rope* ſtill remained *unloſed*, and *ſtraight* about her Neck, they perceived her *Breaſt* to riſe; whereupon one *Maſon* a *Tayler*, intending only an act of Charity, ſet his Foot upon her Breaſt and Belly; and as ſome ſay, one *Orum* a Soldier ſtruck her again with the But-end of his *Musket*.

15. Notwithſtanding all which, when the Learned and Ingenious Sir *William Petty*, then *Anatomy Profeſſor* of the *Univerſity*, Dr. *Wallis*, Dr. *Bathurſt*, and Dr. *Clark* then Preſident of *Magdalene-College*, and *Vice-chancellor* of the *Univerſity*, came to prepare the *Body* for *Diſſection*, they perceived ſome ſmall ratling in her Throat; hereupon deſiſting from their former purpoſe, they preſently uſed means for her Recovery, by opening a *Vein*, laying her in a *warm Bed*, and cauſing another to go into Bed to *her*; alſo uſing divers *Remedies* reſpecting her *ſenſeleſſneſs*, *Head*, *Throat*, and *Breaſt*, in ſo much that within 14 Hours, *ſhe* began to Speak, and the next Day Talked and Prayed very heartily.

16. During the time of this her recovering, the *Officers* concerned in her *Execution*, would needs have had her away again to have compleated it on her: but by the mediation of the *worthy Doctors*, and ſome other *Friends*, with the then *Governour* of the *City*, Colonel *Kelſey*, there was a guard ſet upon *her* to hinder all further diſturbance, till he had ſued out her *Pardon* from the *Powers* then in being; Thouſands of People in the mean time coming to ſee *her*, and Magnifying the juſt Providence of *God* in thus aſſerting her Innocency of *Murther*.

17. After ſome time Dr. *Petty* hearing *ſhe* had diſcourſed with thoſe about *her*, and ſuſpecting that the *Women* might ſuggeſt unto *her* to relate ſomething of ſtrange *Viſions* and *Apparitions* ſhe had ſeen, during the time ſhe ſeemed to be *Dead* (which *they* already had begun to do, telling about that *ſhe* ſaid, *ſhe* had been in a fine *Green Meddow*, having

ing a *River* running round it, and that all things there glittered like *Silver* and *Gold*) *he* cauſed all to depart the *Room*, but the *Gentlemen* of the *Faculty*, who were to have been at the *Diſſection*, and asked her concerning her *Senſe* and *Apprehenſions* during the time ſhe was hanged.

18. To which ſhe anſwered at firſt ſomewhat *Impertinently*, talking as if *ſhe* had been then to *Suffer*. And when they ſpake unto her concerning her *miraculous Deliverance*, ſhe anſwered, that *ſhe* hoped *God* would give her *Patience*, and the like: Afterward, when *ſhe* was better recovered, *ſhe* affirmed, that *ſhe* neither remembred how the *Fetters* were knocked off, how *ſhe* went out of the *Priſon*; when *ſhe* was turned off the *Ladder*, whether any *Pſalm* was ſung or not, nor was *ſhe* ſenſible of any *Pains* that *ſhe* could remember: what is moſt obſervable is, that *ſhe* came to *her ſelf* as if *ſhe* had awaked out of a *Sleep*, not recovering the uſe of her *Speech* by ſlow degrees, but in a manner all together, begining to ſpeak juſt where ſhe left off on the *Gallows*.

19. Being thus at length perfectly recovered, after *thanks* given to *God*, and the *Perſons* inſtrumental in it, *ſhe* retired into the *Country* to her *Friends* at *Steeple-Barton*, where ſhe was afterwards *Married*, and lived in good Repute amongſt her *Neighbours*, having *three* Children afterwards, and not dying, as I am informed, 'till the Year 1659. Which *Occurrence* being thought worthy of remembrance by the Author of *the Continuation of the Hiſtory of the World*, by *Dionyſius Petavius*, who eſtemed it no leſs than the Finger of *God* pointing out the *Maid*'s Innocency; and by Mr. *Heath*, who thought fit to tranſmit it to Poſterity for *God*'s Glory, and *Man*'s Caution in Judging and Puniſhing. It would have been a great *Omiſſion* in me to have paſſed it by untouched.

20. Not long after, *viz.* in the Year 1658. *Elizabeth* the Servant of one Mrs. *Cope* of *Magdalene Pariſh Oxon*, was Indicted at the *City Seſſions* for killing her Baſtard Child, and putting it in the Houſe of *Office*; of which being Convicted, *ſhe* was Condemned to Dye, and accordingly was Hanged at *Green-Ditch*, the place appointed for the *Execution* of the *City Malefactors*, where ſhe hung ſo long, that one of the By-ſtanders ſcrupled not to ſay, that if ſhe were not *Dead*, he would be *hanged* for her: hereupon being cut down (the *Gallows* being very high) ſhe fell with ſuch violence on the Ground, that it would have been enough to have been the Death of many another *Perſon*, only to have

had ſuch a fall. Being thus cut down, *ſhe* was put into a *Coffin* and brought to the *George Inn* in *Magdalene Pariſh* aforeſaid, which when opened, they found perfect Life in *her*, as in the former: whereupon breathing a *Vein*, and putting her to *Bed* with another *Young* Wench by *her*, *ſhe* came quickly to *her ſelf*, and might no queſtion have lived alſo many *Years* after; but having no *Friends* to appear for *her*, *ſhe* was barbarouſly dragg'd the Night following by the Order of one *Mallory* then one of the *Bayliffs* of the *City*, to *Gloceſter-Green*, and there drawn up over one of the Arms of the *Trees*, and hanged a ſecond time 'till ſhe was Dead.

21. After what concerns *Women* ſolitarily conſidered, who according to the courteſy of *England*, have always the firſt place, come we next to treat of things unuſual that concern *Women* and *Men* joyntly together; amongſt which I think we may reckon many ancient *Cuſtoms* ſtill retained *here*, aboliſh'd and quite loſt in moſt other *Counties*: ſuch as that of *Running* at the *Quinten*, *Quintain* or *Quintel*, ſo called from the *Latin* [*Quintus*] becauſe ſays *Minſheu* [c], it was one of the *Ancient Sports* uſed every fifth Year amongſt the *Olympian Games*, rather perhaps becauſe it was the *laſt* of the πένταθλοι, or the *quinque certamina gymnaſtica*, uſed on the *fifth* or *laſt* Day of the *Olympicks*. *vid.* §. 53. of this Chapter. How the manner of it was *then* I do not find, but *now* it is thus.

22. They firſt ſet a *Poſt* perpendicularly into the Ground, and then place a ſlender piece of *Timber* on the Top of it on a *Spindle*, with a *Board* nailed to it on one End, and a *Bag* of *Sand* hanging at the other; againſt this *Board* they anciently rod with *Spears*; now as I ſaw it at *Deddington* in this *County*, only with ſtrong *Staves*, which violently bringing about the *Bag* of *Sand*, if they make not good ſpeed away it ſtrikes *them* in the Neck or Shoulders, and ſometimes perhaps, knocks *them* from their *Horſes*; the great deſign of the *Sport* being to try the Agility both of *Horſe* and *Man*, and to break the *Board*, which whoever does, is for that time accounted *Princeps Juventutis*.

23. For *whom* heretofore there was ſome Reward always appointed, *Eo tempore* (ſays *Matthew Paris*) *Juvenes* Londinenſes, *ſtatuto Pavone pro bravio, ad ſtadium quod Quintena vulgariter dicitur, vires proprias, & Equorum curſus, ſunt experti*: Wherein it ſeems the *King's Servants* oppo-

[c] Minſh. ἴγμα εἰς τὰς γλώσσας, *in verbo.*

fing

ſing *them* were ſorely beaten; for which, upon Complaint, the *King* fined the *City* [f]. Whence one may gather that it was once a Tryal of *Man-hood* between two *Parties*; ſince that, a Conteſt among *Friends* who ſhould wear the *gay Garland*, but now only in requeſt at *Marriages*, and ſet up in the way for *Young Men* to ride at, as they carry home the *Bride*, he that breaks the Board being counted the *beſt Man*.

24. To which may be added the Obſervation of *Hoc-day*, *Hock-day*, *Hoke-day*, *Hoke-tide*, *Hoke-Monday* and *Hoke-Tueſday*: by all agreed to be a *Feſtival* celebrated in Memory of the great Slaughter of the *Danes* in the time of King *Ethelred*, they being all ſlain throughout *England* in one Day, and in great part by *Women* [g]; whence it came to paſs, that the *Women* to this Day bear the chief Rule in this *Feaſt*, ſtopping all Paſſages with *Ropes* and *Chains*, and laying hold on *Paſſengers*, and exacting ſome ſmall Matter of them, with part whereof they *make merry*, and part they diſpoſe of to *pious Uſes*, ſuch as Reparation of their *Church*, *&c.*

25. For which very reaſon ſome have thought it to be called *Hoke-tide*, from the *German* or *High-Dutch*, **Hoge zeit**, *i. e. Tempus Convivii*, a Time of Feaſting; or the *Saxon* hoegen, which ſignifies a *Solemn Feaſt*; or perhaps rather from the *Anglo-Saxon*, heage tiꝺ, *i. e.* a *high Time*, or *high Day*: *Others* that thought the Name reſpected the Contempt that the *Danes* now lay under, amongſt whom is Mr. *Lambard*, thought it ſo called *quaſi* hꝛcxtuerꝺæg, *i. e. Dies Martis irriſorius* [h], perhaps rather from hogian *temnere*: And *others*, that reſpected the Manner of the Celebration of the *Feaſt*, choſe rather to derive it from the *German* **hocken**, which ſignifies *obſidere*, *cingere*, *incubare* [i], to compaſs about, lay hold off, *&c.* as the *Women* do on the *Men* upon this Day.

26. And as about the *Name*, ſo about the *Time Authors* differ much, ſome making *Hoke-day* to be the *Tueſday*, and others the *Monday* fourteenth Night after *Eaſter*, and none of them on the *Danes Maſſacre*, which *Henry* Arch-Deacon of *Huntingdon* [k] expreſly ſays was on the Feaſt of St. *Brice*, *i. e.* the 13th of *November*. That it was formerly obſerved on *Tueſday*, not only Mr. *Lambard*, *ut ſupra*, but *Matthew Paris* alſo gives us Teſtimony, *Et poſt Diem Martis quæ*

[f] Matth. Paris *ſub initium An*, 1253. *edit. Watſianâ*, *p.* 863. [g] *Vid.* Watſii *Gloſſarium in* Mat. Paris. [h] Perambulation of *Kent*, in *Sandwich*. [i] *Vid.* Spelman. *Gloſſarium in verbo*. [k] *Hiſtoriarum Libro* 6. *ſub initium*.

vul-

vulgariter Hoke-day *appellatur, factum eſt Parliamentum* Londini, *&c* [l]. And yet the ſame *Matthew Paris* in another place makes it to fall out on the *Quinſieme* of *Eaſter*, in *Quindena Paſchæ quæ vulgariter* Hoke-day *appellatur convenerunt* Londini, *&c* [m]. which muſt needs be *Monday;* and the very ſame Day it is obſerved here at *Oxford* in our times.

27. In ſo much that I once thought they might *anciently*, as well as *now*, obſerve two *Hock-days*, one for the *Women*, and another for the *Men*, but that I find the ſame *Matthew Paris* to mention the *Monday* before *Hoke-Tueſday*, and not calling it a *Hock-day* at all; *viz. Anno* 1252. where mentioning King *Henry* the *third's* taking on him the *Cruſado*, he ſays, he did it *die Lunæ, quæ ipſum diem proxime præcedit quem* Hoke-day *appellamus* [n]. However it were *then*, it is moſt certain that *now* we obſerve *two* of them here, on *Monday* for the *Women*, which is much the more ſolemn, and *Tueſday* for the *Men* which is very inconſiderable; and yet neither of theſe perhaps was the *dies Martis ligatoria*, whatever Sir *Henry Spelman* may think [o], whereon *Men* and *Women* uſe to *bind* one another, that being now celebrated in ſome parts of *England* on *Shrove-Tueſday:* Much leſs the ſame with the Feaſt of St. *Blaſe*, as *Minſheu* [p] thinks, when *Country-Women* went about and made good Cheer, and if they found any of their *Neighbour-women* a Spinning, ſet their *Diſtaff* on fire; that Feaſt being celebrated on the third of *February*, and in all probability upon ſome other grounds.

28. Amongſt things of this Nature, I think we may alſo reckon an Ancient *Cuſtom* of the *Royalty* of *Enſham*, where it was formerly allowed to the Town's-people on *Whit-monday*, to cut down and bring away, where-ever the *Churchwardens* pleaſed to mark it out, by giving the firſt Chop, as much *Timber* as could be drawn by *Men's* Hands into the *Abbey-yard*, whence if they could draw it out again, notwithſtanding all the *Impediments* could be given the *Cart* by the *Servants* of the *Abbey* (and ſince that by the *Family* of the *Lord*) it was then their own, and went in part at leaſt to the *Reparation* of their *Church;* and by this, as ſome will have it, they hold both their *Lammas* and *Michaelmas Common*. But this *Cuſtom*, now the *Timber* is almoſt deſtroyed thereabout, begins to be ſo inconvenient,

[l] Matth. Paris *in An.* 1258. *edit. Watſ. p.* 963. [m] *Idem in An.* 1255. *edit. Watſ. p.* 904. [n] Matth. Paris *edit. Watſ. p.* 834. [o] *Vid.* Spelman. *Gloſſarium in verbo.* [p] Minſh. ἡγεμὼν εἰς τὰς γλώσσας, *in verbo.*

that

that if it be not ſeaſonably laid aſide, it will diſcourage all People from *planting* it again, even about their very *Houſes*: for to what purpoſe ſhould they do it, when it would ſtill be in the Power of a malicious *Church-warden* to give it a Chop, and deſtroy it when he pleaſes. To prevent which great Evil, I hear the chiefeſt of the *Pariſh* have lately combined, wherein I think they have done well enough, provided always that the Rights of the *Church* (whatever they be) be fully compenſated ſome other way.

29. In the *Northern* part of *Oxford-ſhire*, about *Banbury* and *Bloxham*, it has always been the *Cuſtom* at ſet times of the Year, for young People to meet to be hired as *Servants*; which Meeting, at *Banbury* they call the *Mop*; at *Bloxham* the *Statute*, where they all ſort themſelves, and carry their *Badges* according as they are qualified; the *Carters* ſtanding in one place with their *Whips*, and the *Shepherds* in another with their *Crooks*; but the *Maids*, as far as I could obſerve, ſtood promiſcuouſly: which *Cuſtom* I had ſcarce I think noted, but that it ſeems to be as *old* as our *Saviour*, and to illuſtrate his *Parable* in St. *Matthew*'s *Goſpel*[q], where the *Labourers* are ſaid to ſtand in the *Market* to be hired.

30. And now I have run my ſelf into *Divinity*, I cannot but note an odd *Cuſtom* at *Stanlake*, where the *Parſon* in the Proceſſion about *holy Thurſday*, reads a *Goſpel* at a Barrel's Head in the *Cellar* of the *Checquer Inn*, where ſome ſay there was formerly a *Hermitage*; others, that there was anciently a *Croſs*, at which they read a *Goſpel* in former times, over which now the *Houſe*, and particularly the *Cellar* being built, they are forced to perform it in manner as above.

31. But in matters of *Religion* there is nothing ſo worthy of Memory as the *Chriſtian Unanimity* of the Pariſh of *Brightwell*, where, through the exemplary Piety, and prudent Conduct of that worthy Gentleman, the Worſhipful *John Stone* Eſq; Lord of the *Town*, and the Reverend Mr. *Fiddes*, then *Rector* of the place, and their *Predeceſſors*, and the good Diſpoſition of the *People* themſelves, all Matters both of Spiritual and Temporal Concern, have been ſo effectually preſs'd, and prudently managed, that there has not been known any ſuch thing as an *Ale-houſe*, a *Sectary*, or *Suit of Law* commenced within the whole *Pariſh* (which is of a large Extent) in the Memory of *Man*: which being more

[q] *Matth.* 20. *v.* 3.

for

for ought I know, than any Pariſh in *England* can ſay beſide, and ſo well worthy the Imitation of all other *places*, I thought fit (for the eternal Honour of its *Inhabitants*) to recommend it accordingly.

32. Yet but few Miles off, at the *Town* of *Watlington*, I was told of a ſort of *Sectaries*, perhaps never heard of in the *World* before; which if ſo, is as ſtrange as the thing it ſelf, for *one* would have thought there could have nothing been ſo abſurd in *Religion*, but what muſt have needs been embraced already. Theſe by the reſt of the *People* are called *Anointers*, from the *Ceremony* they uſe of *anointing* all Perſons before they admit them into their *Church*, for which they allege the fifth of St. *James*, *ver.* the 14 and 15. *Is there any ſick among you* (which it ſeems they account all People to be but themſelves) *let him call for the Elders of the Church, and let them pray over him, anointing him with oyl in the name of the Lord; and the prayer of faith ſhall ſave the ſick, and the Lord ſhall raiſe him up, and if he have committed ſins they ſhall be forgiven him:* which *Elders* amongſt them are ſome poor *Tradeſmen* of the *Town*, and the *Oyl* they uſe, that commonly ſold in the *Shops*, with which the *Proſelyte* being ſmeared over, and fired with *Zeal*, he preſently becomes a new *Light* of this *Church*; which I could not but note, theſe *People* being as remarkably *mad*, as thoſe of *Brightwell* are *good*. Though perhaps ſome may think one *Richard Haſtings*, then of *Broughton*, and living near *Banbury*, more religiouſly *mad* than any of thoſe; who with *Origen* underſtanding the twelfth Verſe of the nineteenth *Chapter* of St. *Mathew's Goſpel* literally, hath caſtrated, and ſo made himſelf an *Eunuch* for the Kingdom of Heaven's ſake.

33. And thus much of *Men* and *Women* joyntly together in their *Lives*; as to what concerns their *Deaths*, I muſt add alſo a *Relation* as ſtrange as 'tis true, of the Family of one Captain *Wood*, late of *Bampton*, now *Briſe-Norton*, Captain in the late Wars for the *King*: Some whereof before their *Deaths* have had ſignal Warning given them by a certain *knocking*, either at the *Door* without, or on the *Table* or *Shelves* within; the *number* of Stroaks, and diſtance between them, and the *place* where, for the moſt part reſpecting the Circumſtances of the *Perſons* to Dye, or their *Deaths* themſelves, as will eaſily be collected from the following Relation.

34. The

34. The firſt *knocking* that was heard, or at leaſt obſerved, was about a Year after the Reſtoration of the *King*, in the Afternoon a little before Night, at or upon the *Door*, it being then open, as it was apprehended by Mrs. *Elenor Wood*, Mother to Captain *Baſil Wood*, who only heard it, none being then by or about the *Houſe* but her ſelf; at which ſhe was very much diſturbed, thinking it boded ſome ill to *her* or *hers*, and within fourteen Nights after, ſhe had news of the Death of her Son-in-Law Mr. *George Smith*, who died in *London*.

35. About three Years after that, there were three great *knocks* given very audibly to all that were then in the *Houſe*, *viz.* to the aforeſaid Mrs. *Elenor Wood*, Mr. *Baſil Wood*, and his Wife Mrs. *Heſter*, and ſome *ſervants:* which *knocks* were ſo remarkable, that one of the *Maids* came from the *Well* which was about twenty Yards from the place, to ſee what was the matter; and Mrs. *Elenor Wood*, and another Maid that was within the *Houſe*, ſaw three great Pans of *Lard* ſhake and totter ſo upon a Shelf in the *Milk-houſe*, that they were like to fall down. Upon this violent *knocking*, Mr. *Baſil Wood* and his *Wife* being then in the *Hall*, came preſently into the *Milk-houſe* to their Mother, where finding her ſomewhat diſturbed, and enquiring the Reaſon, *ſhe* replyed, *God Almighty* only knew the matter, *ſhe* could tell nothing but *ſhe* heard the *knocking;* which being within Doors, Mr. *Baſil Wood* concluded muſt be for ſome of the Family at *Home*, that upon the *Door* being for a Friend *Abroad:* which acordingly fell out, *three* of the *Family*, according to the number of the *knocks*, dying within little more than half a Year after; *viz.* Mrs. *Heſter Wood* Wife to Mr. *Baſil Wood*, a Child of Mr. *Wood*'s Siſter, and Mrs. *Elenor Wood* his *Mother*.

36. About *Auguſt*, 1674. Mr. *Baſil Wood junior*, Son of *Baſil* aforeſaid, living at *Exeter* in *Devon-ſhire*, heard the ſame kind of *knocking*, at which being diſturbed, he wrote word to his *Father* here at *Bampton* in *Oxford-ſhire; viz.* That *one* Sunday, *He* and his *Wife*, and her *Siſter*, and his *Brother*, did diſtinctly hear upon a *Table* in their Chamber as they ſtood by it, two ſeveral *knocks* ſtruck as it were with a *Cudgel*, one of them before, and the other after *Morning-Prayer*, a little before *Dinner:* which Letter was ſhewn by Mr. *Wood ſenior* (as the other *knockings* before the Deaths of any that dyed, were before-hand told) to ſeveral neighbouring *Gentlemen*. After which, within about fourteen

Days, Mrs. *Heſter Wood* a ſecond Wife of Mr. *Baſil Wood ſenior*, and about a quarter of a Year after, her Father Mr. *Richard Liſſet*, Died both at *Bampton*; ſince which time they have heard nothing more as yet.

37. Amongſt ſuch unaccountable things as theſe, we may reckon the ſtrange Paſſages that happened at *Woodſtock* in *Anno* 1649, in the *Manor-Houſe* there, when the *Commiſſioners* for Surveying the *Manor-Houſe*, *Park*, *Deer*, *Woods*, and other the *Demeſnes* belonging to that *Manor*, ſat and lodged there: Whereof having ſeveral *Relations* put into my Hands, and one of them written by a Learned and Faithful *Perſon* then living upon the place, which being confirmed to me by ſeveral *Eye-witneſſes* of many of the particulars, and all of them by one of the *Commiſſioners* themſelves, who Ingenuouſly confeſt to me, that he could not deny but what was written by that *Perſon* above-mention'd was all true; I was prevailed upon at laſt to make this *Relation* publick (though I muſt confeſs, I have no eſteem for ſuch kind of *Stories*, many of them no queſtion being perform'd by Combination) which I have taken care to do as fully, yet as briefly as may be.

38. *October* the 13*th* 1649, the *Commiſſioners* with their Servants being come to the *Manor-Houſe*, they took up their Lodging in the *King*'s own Rooms, the *Bed-chamber* and *with-drawing Room*; the former whereof they made their *Kitchin*; the *Councel-hall*, their *Brew-houſe*; the *Chamber* of *Preſence*, their place of fitting to diſpatch Buſineſs; and a *Wood-houſe* of the *Dining-room*, where they laid the *Wood* of that Ancient *Standard* in the *high-Park*, known of all by the name of the *King's Oak*, which (that nothing might remain that had the name of *King* affixed to it) they digged up by the *Roots*. *October* the 14 and 15*th* they had little diſturbance, but on the 16*th* there came as they thought, ſomewhat into the *Bed-chamber* where two of the *Commiſſioners* and their *Servants* lay, in the ſhape of a *Dog*, which going under their *Beds*, did as it were gnaw the Bed-cords; but on the morrow finding them whole, and a quarter of Beef which lay on the Ground untouched, they began to entertain other thoughts.

39. *October* 17*th* Something to their thinking removed all the *Wood* of the *King's Oak* out of the *Dining-room* into the *Preſence-chamber*, and hurled the Chairs and Stools up and down the *Room*: From whence it came into the two *Chambers* where the *Commiſſioners* and their *Servants* lay,

and

upon they lighted Candles, but to their Grief they found nothing but *Glaſs*, which they took up in the Morning and laid together. *October* 29. Something walked in the *with-drawing Room* about an Hour, and going to the *Window* opened and ſhut it; then going into the *Bed-chamber*, it threw *great Stones* for about half an Hours time, ſome whereof lighted on the *High-bed*, and others on the *Truckle-bed*, to the Number in all of about fourſcore. This *Night* there was alſo a very great Noiſe, as though forty *pieces* of *Ordnance* had been ſhot off together; at two ſeveral *Knocks* it aſtoniſhed all the *neighbouring Dwellers*, which 'tis thought might have been heard a great way off. During theſe *Noiſes* which were heard in both *Rooms* together, both *Commiſſioners* and *Servants* were ſtruck with ſo great Horror, that they cryed out to one another for Help, whereof *one* of them recovering *himſelf* out of a ſtrange *Agony* he had been in, ſnatch'd up a *Sword*, and had like to have killed one of his *Brethren* coming out of his Bed in his Shirt, whom he took for the *Spirit* that did the Miſchief: However, at length they got all together, yet the Noiſe continued ſo great and terrible, and ſhook the *Walls* ſo much, that they thought the whole *Manor*, would have fell on their Heads. At its Departure it took all the *Glaſs* away with it.

42. *November* 1. Something as they thought walk'd up and down the *with-drawing Room*, and then made a Noiſe in the *Dining-room*: The *Stones* that were left before and laid up in the *with-drawing Room*, were all fetch'd away this Night, and a great deal of *Glaſs* (not like the former) thrown about again. *November* 2. came ſomething into the *with-drawing Room* treading (as they conceived) much like a *Bear*, which firſt only walking about a Quarter of an Hour, at length it made a Noiſe about the *Table*, and threw the *Warming-pan* ſo violently, that it quite ſpoiled it: It threw alſo *Glaſs* and *great Stones* at them again, and the *Bones* of *Horſes*, and all ſo violently, that the *Bed-ſted* and *Walls* were bruiſed by them. This Night they ſet *Candles* all about the *Rooms*, and made *Fires* up to the Mantle-trees of the *Chimneys*; but all were put out no Body knew how, the *Fire*, and *Billets* that made it, being thrown up and down the *Rooms*; the *Curtains* torn with the *Rods* from their *Beds*, and the *Bed-poſts* pull'd away, that the *Teſter* fell down upon them, and the Feet of the *Bed-ſted* cloven in two: And upon the *Servants* in the *Truckle-bed*,

who

who lay all this time ſweating for Fear, there was firſt a little, which made them begin to ſtir; but before they could get out, there came a whole *Coule*, as it were, of ſtinking *Ditch-water* down upon them, ſo *green*, that it made their *Shirts* and *Sheets* of that Colour too.

43. The ſame Night the *Windows* were all broke by throwing of *Stones*, and there was moſt terrible Noiſes in three ſeveral places together, to the extraordinary Wonder of all that lodged near them; nay, the very *Cony-ſtealers* that were abroad that Night, were ſo affrighted with the diſmal Thundering, that for Haſte they left their *Ferret* in the *Cony-boroughs* behind them, beyond *Roſamond's Well*. Notwithſtanding all this, one of them had the Boldneſs to ask in the Name of *God, What it was? What it would have?* and *What they had done, that they ſhould be diſturbed in this manner?* To which no *Anſwer* was given, but the *Noiſe* ceaſed for a while. At length it came again, and (as all of them ſaid) brought ſeven *Devils* worſe than it ſelf. Whereupon one of them lighted a *Candle* again, and ſet it between the two *Chambers* in the Door-way, on which another of them fixing his *Eyes*, ſaw the Similitude of a *Hoof* ſtriking the *Candle* and *Candle-ſtick* into the middle of the *Bed-chamber*, and afterwards making three Scrapes on the Snuff to put it out. Upon this the ſame Perſon was ſo bold as to draw his *Sword*, but he had ſcarce got it out, but there was another *inviſible Hand* had hold of it too, and tugg'd with *him* for it, and prevailing, ſtruck *him* ſo violently with the *Pummel*, that *he* was ſtun'd with the Blow.

44. Then began grievous Noiſes again, in ſo much that they called to one another, got together and went into the *Preſence-chamber*, where they ſaid *Prayers* and ſang *Pſalms*; notwithſtanding all which, the thundring Noiſe ſtill continued in other *Rooms*. After this, *November* 3. they removed their *Lodgings* over the Gate; and next Day being *Sunday*, went to *Ewelm*, where how they eſcaped, the *Authors* of the *Relations* knew not; but returning on *Monday*, the *Devil* (for that was the Name they gave their nightly Gueſt) left them not unviſited; nor on the *Tueſday* following, which was the laſt Day they ſtaid. Where ends the *Hiſtory* (for ſo he was ſtiled by the People) of the Juſt *Devil* of *Woodſtock*; the *Commiſſioners* and all their *Dependants* going quite away on *Wedneſday*; ſince which time ſays the *Author* that lived on the place, there have

honeſt

Perſons of good *Quality* lodged in the *Bed-chamber* and *with-drawing Room*, that never were diſturb'd in the leaſt like the *Commiſſioners*.

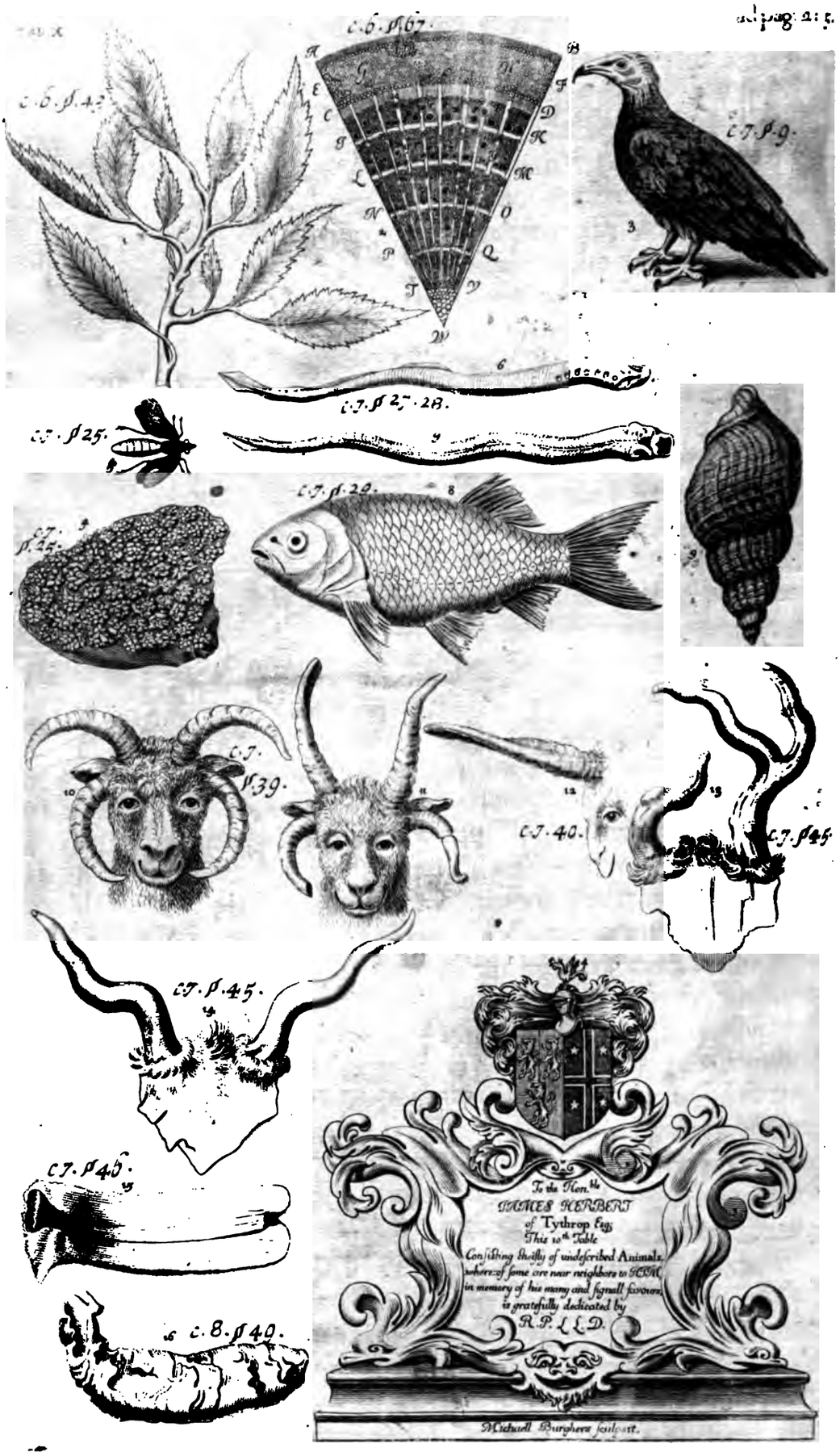
45. Moſt part of theſe *Tranſactions*, during the Stay of theſe *Commiſſioners*, 'tis true, might be eaſily performed by *Combination*, but ſome there are of them ſcarce reconcileable to *Juggling*: Such as 1. The extraordinary *Noiſes*, beyond the Power of *Man* to make, without ſuch *Inſtruments* as were not there. 2. The taring down and ſplitting the *Bed-poſts*, and putting out ſo many *Candles* and ſo great *Fires* no Body knew how. 3. A viſible *Shape* ſeen of a *Horſe*'s Hoof treading out the *Candle*. And 4. a tugging with *one* of them for his *Sword* by an *inviſible Hand*. All which being put together, perhaps may eaſily perſwade ſome *Man* otherwiſe inclined, to believe, that *immaterial Beings* might be concern'd in this Buſineſs; which if it do, it abundantly will ſatisfy for the Trouble of the *Relation*, ſtill provided the *ſpeculative Theiſt*, be not after all, a *practical Atheiſt*.

46. And thus, before I am aware, being fallen amongſt the *unuſual Accidents* that have happened to *Men* only, the next unaccountable thing that preſents its ſelf, is a remarkable *Dream* of *Thomas Wotton* Eſq; of *Boſton Malherb* in the County of *Kent*, Father to the famous Sir *Henry Wotton* then Provoſt of *Eaton*, whoſe *Dreams* did uſually prove true, both in fore-telling things to come, and diſcovering things paſt. The *Dream*, 'tis true, of which I am now writing, was had at *Boſton* in *Kent*, but the moſt important Concern of it relating to *Oxford*, I thought fit rather of the *two* to place it here; the Particulars whereof, as taken *verbatim* out of Sir *Henry Wotton*'s Life[r], are briefly theſe.

47. *This* Thomas Wotton, *a little before his Death* dreamed, *that the* Univerſity Treaſury *was robbed by* Towns-men *and* poor Scholars, *and that the Number was five. And being that Day to write to his Son* Henry (*then a Scholar of* Queen's College) *at* Oxford, *he thought it worth ſo much pains, as by a Poſtſcript in his Letter, to make a ſlight Enquiry of it. The Letter* (*which was writ out of* Kent, *and dated three Days before*) *came to his* Son's *Hands the very Morning after the Night in which the Robberry was committed; and when the* Univerſity *and* City *were both in a perplext Inqueſt of the Thieves, then did Mr.* Wotton *ſhew his Father's Letter, by which ſuch Light*

[r] *Inter Reliquias* Wottonianas.

was


c. 6. p. 67.
c. 6. p. 42.
c. 7. p. 9.
c. 7. p. 25. 28.
c. 7. p. 25.
c. 7. p. 29.
c. 7. p. 25.
c. 7. p. 39.
c. 7. p. 40.
c. 7. p. 45.
c. 7. p. 45.
c. 7. p. 45.
c. 8. p. 40.
To the Hon.ble
JAMES HERBERT
of Tythrop Esq.
This 10.th Table
Consisting chiefly of undescribed Animals,
whereof some are near neighbors to HEM,
in memory of his many and signall favours,
is gratefully dedicated by
R. P. L. L. D.
Michaell Burghers sculpsit.

was given of this Work of Darkneſs, that the five guilty Perſons were preſently diſcovered, and apprehended.

48. Amongſt the *unuſual Accidents* attending Men in their *Lives*, we muſt alſo reckon all *unuſual Diſeaſes*, ſuch as that of Mr. *Evans* Rector of *Heath*, who had a *Ranula* under his *Tongue*, wherein there bred a *Stone*, I ſuppoſe *e ſanguine craſſo & terreſtri*; or as they call it, a *Tartareous* Humor got together in the *Veins* under the *Tongue*, ſo hard and great that it almoſt quite deprived *him* of his Speech; Which he drew away with his own Hand, and as he told me, ſent it to the *Medicine School* at *Oxford*; but upon ſearch I could not find it, nor had the *School-keeper* ever heard of any ſuch matter: So that whoever he were that he ſent it by, proved falſe both to *Him* and the *Univerſity*; which I the rather note, that people hereafter may take care by whom they ſend ſuch matters. Of juſt ſuch another *Stone* as this Dr. *Liſter* gives us an account in a Letter to his *Grace* the *Arch-Biſhop* of *York*[f], cut from under the *Tongue* of a *Man*, and now preſerved in the Repoſitory of the *Royal Society*, which he chuſes to call *Lapis Atheromatis*, though the place of its Birth made him allow the Diſtemper to be a *Ranula*: but for my part, though the *Ranula* be always a *Tumor*, and ſometimes perhaps of that ſort they call *Atheromata*; yet the *place* giving the *Diſeaſe* a peculiar Name, I think I ought rather to call it *Lapis Ranulæ*, from the place of its Birth, and thoſe only *Lapides Atheromatis* found in that *Tumor* in other places of the Body.

49. To this may be added a large *Stone* taken out of the Bladder of one *Skingley* of *Oxford*, weighing above a Pound, and being ten Inches round one way *fere*, and full eleven the other; preſerved, and now to be ſeen in the *Medicine School*. As alſo a *Corn* that grew on the Toe of one *Sarney* a *Wheel-wright*, of St. *Aldate*'s Pariſh in the *City* of *Oxford*, *Anno* 1655, two Inches long, which for the unuſual figure and bigneſs of it, I have cauſed to be Ingraven of its juſt Magnitude, *Tab.* 10. *Fig.* 16. which is alſo to be ſeen in the *Medicine School*.

50. Amongſt which alſo I think we may number the deſcending Trunck of the *Arteria magna*, taken out of the Body of an ancient *Perſon*, by the Skilful Mr. *Pointer* Chirurgeon of *Oxford*, in the Preſence of Dr. *Millington* late *Sidleyan Profeſſor* of *Natural Philoſophy*, whoſe innermoſt

[f] *Philoſoph. Tranſact. numb.* 83.

Coat

Coat from above the *Emulgents* down to the *Iliac* Branches, is by Parcels only (and not continued throughout) turned into *Bone*, the outer Coat remaining ſoft and tender in its ordinary State; which *Artery* remains to be ſeen in the Cuſtody of Mr. *Pointer*. Juſt ſuch another *Artery* as this, I find obſerved by *Fallopius*[t]: and Dr. *Willis* took another of them out of a Man much uſed to *Wine* and *ſtale Drinks*[u]; who alſo informs us, that in the *Diſſection* of one that Died of an ulcerated *Schirrus* in the *Meſentery*, he found one of the *Carotides* turned into *Bone* in the ſame manner[w]: Beſide, above the *Emulgents* nearer the Heart, there was a Portion of this *Artery* turned into an *annulary Bone*, perhaps ſuch another as was obſerved by Dr. *Harvey*, and *Veſlingius*[x], in the great *Artery* of an old Man; but this I have not ſeen, it being then in the Poſſeſſion of our aforemention'd *Profeſſor* reſiding in *London*.

51. Amongſt other the Fore-runners of Death and the Grave, we muſt not forget extream *old Age*, ſuch as thoſe above-mentioned, §. 3. of the *ſecond Chapter*; and of one *Joſias Pierce* late of *Witney*, better known by the Name of *George Jus*, who lived to the *Age* of an hundred and twelve. Where alſo in the Tything of *Curbridge* there was one *William Carter* at leaſt a hundred Years old, who yet it ſeems had not lived more abſtemiouſly than others of his Rank, nor did he at that *Age* take ſo much Care, as other People of his Health: he commonly lay naked amongſt the *Blankets* of the *Mill* where he lived, which many times were not over dry; out of which he would go naked in the midſt of *Winter*, and drink cold Water at the *River*'s ſide.

52. Of *Accidents* in the very point of *Death*, I have met with none more obſervable amongſt the Men of this *County*, "than that of Mr. *Vincent Denn* Fellow of *All-ſouls-* "*College*, Uncle to Mr. Serjeant *Denn* of *Canterbury*, who "in a Quarrel with a Town's-man, being knock'd on the "Head, the ſaid Town's-man being a Man of great In- "tereſt, the *Jury* brought him in guilty but of *Man-ſlaughter*, "whereupon claiming the Benefit of the Book, which when "put to him, the Letters he ſaid appeared all ſo Bloody that "he could not read, wherefore he was Condemned notwith- "ſtanding, after which he could read as well as any Man in "Court, and was after Hang'd; nor of any attending them in the *Grave*, except we may reckon that one, of *Preſer-*

[t] Gabr. Fallop. *tom.* 2. *tract.* 9. *cap.* 14. [u] *Pharmacent. rationalis, ſect.* 6. *cap.* 3. [w] *Cerebr. Anatom. cap.* 7. [x] *Syntag. Anatom. cap.* 10.

vation

vation from *Corruption* many Years after *Death*; ſuch as that of the Body of *one* that had been *Rector* of *Wendlebury*, taken up in the *Church* there near forty Years after he had been buried, whoſe Fleſh yet look'd as *red*, (as I was informed by the *Incumbent*, ſince alſo dead) as *raw Beef*: which whether it might not be cauſed by the *petrifying* Qualities of the *Earths* and *Waters* about that *Town*, would be an Experiment worthy the Tryal of the *Ingenious* thereabout; or about *Sommerton* or *North-Aſton*, where it would be eaſy to try whether Fleſh were ſo inclinable to corrupt in *petrifying* Waters as *others*. But if this prove the Cauſe, all *Bodies* muſt equally be preſerved there, as well as that. *De quibus quære.*

53. And thus I had finiſh'd this *eighth Chapter*, but that I muſt beg leave to acquaint the *Reader*, that ſince the firſt Printing the 21 §. of it, I have found the *Quintan* amongſt the *Roman* Exerciſes (which yet perhaps they might borrow from the *Greeks*) by the Name of *Quintana*; ſo called, by reaſon the *Romans* in their *Tents* made firſt *four ways* in manner of a *Croſs*, to which adding a *fifth* on one ſide, it was called *Quintana**. In this way they ſet up a great *Poſt* about ſix Foot high, ſuitable to the Stature of a *Man*, and this the *Roman* Soldiers were wont to aſſail, with all Inſtruments of *War*, as if it were indeed a real *Enemy*; learning upon this, by the Aſſiſtance of the *Campidoctores*, how to place their Blows aright. And this they otherwiſe called *Exercitium ad Palum*; and ſometimes *Palaria*, the Form whereof may be ſeen in *Vulturius* †: which Practice being in uſe during their *Government* here, in all likelihood has been retained among us ever ſince, being only tranſlated in times of Peace, from a *military*, to a ſportive *marriage* Exerciſe.

* *Vid.* Guid. Pancirollum, *Rer. memorabilium, lib.* 2. *tit.* 21. † *In Auguſtanis Monumentis, p.* 237.

ADDITIONS *to* CHAP. VIII.

§. 11. Of a Maid that lived a long time without, or with little Food. *vid. Lib. inter* Fairfaxianos *in Bib. Bod.* and an Hiſtory of a *Dutch* Maid that lived 14 Years without Food, in *Bib. Bod.* 4. *p.* 46. *Arts.*

§. 25. *Hoke-Tide.*] The Obſervation of *Hoke-days* forbidden by the Bp. of *Worceſter ſub pœna Excommunicationis.*

M. S. in Bib. Bod. inter Codices ſup. A. B. &c. n. 13. To the Obſervation of *Hoke-Tide* may be added the Cuſtom at *Carfax*, after the *Curfew* has done ringing, to let the Citizens know the Day of the Month by ſo many Tolls: as alſo the Cuſtoms obſerved at ſome Colleges, as 1. The *Mallard Night* at *Allſouls-College*. 2. The Cuſtom of Singing upon *Magdalene College* Tower, and of the *Cook*'s fetching in the *Flye* on *May-Day*. 3. *New-College* Scholars going to St. *Bartholomew*'s Chappel and Well on *May-Day*. *Carpenter*'s Hiſt. of *Oxon.* M. S. p. 152, 153. 4. The Cuſtom at *Queens-College* of giving to the *Fellows* a *Needle* and *Thred*, which is but a *Rebus* on their *Founder*'s Name; *Aiguille* in *French* ſignifying a *Needle*, and *Fil* a *Thred*. To which may be added the Cuſtom of the *Boar's-Head*. Laſtly, That moſt excellent Proviſion made by the *Founders* of *Wadham-College*, whereby they permit not any of their *Fellows* to keep their places above 20 Years, leſt they ſhould be tempted thereby to forſake the Service of their Country, as was order'd at *Rome* by the Conſtitution of *Valentinian*. *vid.* Stillingfleet's *Antiq. Brit.* chap. IV. p. 210, 211.

§. 37, 38, 39, *&c.*] Add hereunto the wonderful Accident that happened in the Houſe of Mr. *George Lee* of *North-Aſton*, whereof there is a printed Account *An.* 1592. *vid. Mr.* Pit's *Catalogue*, *pag.* 259.

§. 47. Of the Truth of *Dreams* ſee *Britan. Bacon.* p. 7. And Mr. *Wood* ſaith, that upon Examination of the *Univerſity* Regiſters, Records, Accounts, for the time Sr. *Henry* reſided in *Oxford*, *viz.* from *An.* 1584 to *An.* 1589, he finds no ſuch Robbery committed. *Athen. Oxonienſes*, p. 531.

§. 51. See the reaſon why ſome *Britains* live to 120. *Cambden* in *Derby-ſhire*, p. 555.

CHAP.

CHAP. IX.

Of Arts.

THUS having run through all the *Natural Bodies* I have met with in *Oxford-ſhire*, ſuch as either *Dame Nature* has always retained the ſame from the Beginning, as *Waters*, *Earths*, *Stones*, *&c.* or freely produces in her ordinary Courſe, as *Plants*, *Animals*, with all her *Extravagancies* and *Defects*, or other *Accidents* attending: I am come at length, according to my propoſed *Method*, to treat of *Arts*, and *things artificial*, that have either been *invented* or *improved* in this *County*; whereof firſt, of ſuch as have tended to the Diſcovery of the *Magnitudes*, or determination of the *Motions* of the *Heavenly Bodies*, whither alſo muſt be referr'd the Contrivance of new *Periods*, of new *Hypotheſes* and their *Demonſtrations*. Secondly, I ſhall conſider *Air*, *Fire*, and *Water-works*, and thence go on to ſuch *Arts* as have any relation to *Earths*, *Stones*, or *Plants*. In ſhort, I ſhall here alſo follow the *Method* of the whole *Eſſay* as in ſome other *Chapters*, by the way taking in all *Inventions*, and *Improvements* that I have met with in this *County*, whether in the *Mechanick* or *Liberal* Arts; which I intend the whole *Scope* of the following *Chapter*.

2. The firſt *Celeſtial Obſervations* in order of Time, made here, that were any thing *artificial*, I preſume might be done by *Robert Groſthead* Biſhop of *Lincoln*, *craſſi quidem capitis*, *ſed ſubtilis ingenii*, ſays *Pitſeus* of him[y]; who amongſt other his Learned *Works*, left us Treatiſes of the *Sphere* and the *Aſtrolabe*, with which no queſtion he found out many things that were *new* to that *Age*: But becauſe we can inſtance in no *Particulars*, let it ſuffice as an Evidence of the great Probability, that he is highly commended for his Knowledge in *Aſtronomy* and *Perſpective* by *Roger Bacon* a *Fryer minor* of *Oxford*, and ſometime Fellow of *Merton College*, a Man of ſuch affrighting Skill in *Mathematicks*, eſpecially *Perſpective*, that he juſtly deſerved the Title of Dr. *Mirabilis*. Nor indeed was he out of the way who gave him ſo much, ſince had he lived in our Days we could have given no leſs, to one who in all Probability was

[y] *In Anno* 1253.

a great *Improver* at leaſt, if not the *Inventor* of that uſeful *Mathematical Inſtrument*, ſince by *Galilæus* and others called the *Teleſcope;* of which admirable *Invention* perhaps *Oxford* may juſtly boaſt, and for it expect to be celebrated to all *Poſterity*. Which Aſſertion if made good with all Perſpicuity and Clearneſs, without wreſting any Words or begging favourable Conſtruction, I think I need not doubt but on all hands 'twill be granted, that the *Obſervations* here made, as they were *new* and *frequent*, ſo to the *vulgar* and ignorant, they muſt needs be *terrible* and *amazing*.

3. That this Learned *Fryar* underſtood all ſorts of *Glaſſes*, and to order and adapt them to ſuch like Purpoſes (not to cite other *Places* that might eaſily be brought) I think I may with *Truth* as well as *Confidence* affirm from the unconſtrained Senſe of his own Words, in his Book of *Perſpective*. *Si vero corpora non ſunt plana per quæ viſus videt, ſed ſphærica; tunc eſt magna diverſitas, nam vel concavitas corporis eſt verſus oculum, vel convexitas* [z]. But, ſays he, if the *Glaſſes* be not plain (having treated of them before) but *ſpherical*, the Caſe is much otherwiſe; for either the *Concavity* of the *Glaſs* is next the *Eye*, or the *Convexity*, &c. Now that *he* uſed theſe *Glaſſes* in *Celeſtial Obſervations*, is altogether as Evident from the ſame *Book*, where *he* proceeds in theſe Words. *De viſione fracta, majora ſunt, nam de facili patet, maxima poſſe apparere minima, & e contra; & longe diſtantia videbuntur propinquiſſime, & e converſo: ſic etiam faceremus Solem, & Lunam, & Stellas deſcendere ſecundum apparentiam hic inferius*, &c [a]. Greater things are performed if the *Viſion* be *refracted*, for [by *Refraction*] 'tis eaſily made appear, that the *greateſt Things* may be repreſented *leſs*, and *little Things* as the *greateſt;* and that things *a far off* may be repreſented *near:* Thus we can make the *Sun*, and *Moon*, and *Stars*, to all Appearance, to come down to us here below, &c.

4. Again in his *Epiſtle ad Pariſienſem*, concerning the ſecret Works of *Art* and *Nature*. *Poſſunt enim ſic figurari perſpicua, ut longiſſime poſita, appareant propinquiſſima, & e contrario; ita quod ex incredibili diſtantia legeremus literas minutiſſimas, & numeraremus res quantumcunque parvas, & Stellas faceremus apparere quo vellemus* [b]. *Glaſſes* may be ſo figured, that things the moſt *remote* may appear *near;* ſo that at an *incredible Diſtance* we may read the ſmalleſt *Character*, and number *things* though never ſo *ſmall;* and laſtly,

[z] *Perſpect. part.* 3. *diſt.* 2. *cap* 3. [a] *Ibid. diſt. ult.* [b] *In Epiſt. ad Pariſiens. cap.* 5.

make

make *Stars* appear as *near* as we pleaſe. And *theſe things*, he ſays at another place, were to the *Illiterate* ſo formidable and amazing, *Ut animus mortalis ignorans veritatem non poſſit aliqualiter ſuſtinere* [c], that no *Mortal*, ignorant of the means, could poſſibly bear it.

5. Wherein this Learned *Franciſcan* did ſo far excel the ancient *Magicians*, that whereas they repreſented the *Moon*'s Approach by their *magical Charms*, he brought *her* lower with a greater Innocence, and with his *Glaſſes* did that in *Truth*, which the ancient *Poets* always put in a *Fable*: thus *Petronius* brings in his *Witch*, boaſting the Power of her *Charms*.

-----Lunæ deſcendit imago
Carminibus deducta meis.

And *Martial* [d] in the *Epitaph* of *Philænis* enquires,

Quæ nunc Theſſalico Lunam deducere Rhombo
Quæ ſciet?

All which put together, it muſt neceſſarily be confeſt, that *he* had ſome ſuch *Inſtrument*, though not ſo trimly made, 'tis like, as our *Teleſcopes* are now. In favour of which Truth, much more might be alleged, did I not think this ſufficient to evince it with unprejudiced *Readers*, for whoſe Benefit I have laid down his Words thus at large, and tranſlated them (as I alſo intend in ſome other matters) that ſuch as have not the Opportunity of ſeeing his *Books*, or underſtand not his *Language*, might give their Verdict, as well as *thoſe* that have, or do.

6. Upon the Account of theſe, and many other excellent *Experiments*, exceeding ('tis true) the *Capacity*, but not the *Malice* of thoſe times, he was accuſed of *Magick* in its worſt Senſe, to have performed them by the concurrent Help of the *Devil* [e], perſecuted as ſuch by thoſe of his own *Fraternity*, and thrown into Priſon by *Hieronymus de Eſculo* [f], *General* of his *Order*, afterward Pope by the Name of *Nicholas the Fourth*, where they ſo barbarouſly treated him, that he was forced to ſeek Redreſs of *Clement the Fourth*, to whom he made Complaint, not only of his hard Uſage, and Sequeſtration of his *Books*, but Charge of his *Experiments*, ſome whereof he tells him, eſpecially concerning *burning things* at any *Diſtance*, would amount at leaſt to a *thouſand Marks*, *Et certe combuſtio in omni di-*

[c] *Perſpect. part.* 3. *diſt.* 3. [d] *Mart. Epig. lib.* 9. *Epig.* 22. *ſive* 30. [e] *Vid. Hiſtor. & Antiq. Univerſ. Oxon. Lib.* 1. *p.* 138. [f] *Balæi Cent.* 4. *Numb.* 55.

ſtantia

ſtantia conſtaret pluſquam mille marcas, antequam ſpecula ſufficientia fierent ad hoc [g], are his very Words. And at another place ſpeaking of *Mathematical Inſtruments, Inſtrumenta hæc non ſunt facta apud Latinos, nec fierent pro ducentis nec trecentis libris* [h], that they would not be made for two or three hundred Pounds: great *Sums* indeed in *Bacon*'s time, yet ſcarce bearing Proportion with his greater Attempts.

7. Which made them at laſt ſo jealous of *him*, that notwithſtanding *he* wrote a whole Treatiſe againſt the uſe of *Magick* [i], they would ſuffer none to come near *him*, nor his *Books* to have place in their *Libraries*, inſomuch that it almoſt repented him of his Inventions [k], which in all Probability (not to mention the *Humor* of the *Age*, very careful of breaking the *Heavenly Seal* (as they called it) which obſcured their *Myſteries* from the unworthy Multitude) was the Cauſe why he left us no particular *Phænomena* of the Motions of the *Planets*, nor any thing of *new Stars*; the diſcloſing ſuch *Secrets* producing many Inconveniencies. Which alſo was the Reaſon (as gueſs'd by Dr. *Dee* [l]) why he never revealed his Secret of *Gun-powder*; not but he eſteemed it a conſiderable *Invention*, but becauſe he fore-ſaw the many *Evils* attending it, which theſe latter *Ages* have ſeverely felt; ſince brought into Practice by *Bertholdus Swartz*, of which more fully in its proper Place.

8. So far then was *John Lipperſein* of *Zeland*, *Metius* of *Alckmar*, or *Galilæus* himſelf from being the *Inventor* of the *Teleſcope*, and firſt *Applyer* of it to the *Heavens*; that perhaps had not *Bacon* left his Books to Poſterity, with ſuch pregnant Indications how much might be done that way; *he* had been as little able to make thoſe *Advancements* he did, as *Paulus Middleburgenſis*, or *Copernicus* had been, to give Occaſion for the Correction of the *Julian Calendar*, or *Tropical Year*, conſiſting of 365 Days and 6 Hours (firſt contrived, as *Bacon* informs us, by one *Fælix* [m], and only perfected by *Cæſar*) which though not performed till the time of *Gregory* the 13*th*, *Anno* 1582. yet the *firſt Motion* of its being done, was certainly made by this Learned *Friar* to Pope *Clement* the 4*th*, as appears from a fair MS. Copy of the fourth part of his *Opus Minus* in the *Bodleyan*

[g] *In operis Min. part.* 3. *cap.* 13. *MS. in Bibl. Bod.* [h] *In eadem Op. Min. part.* 3. *cap.* 11. [i] *Contra Necromanticos ſive de nullitate Magiæ.* [k] *Vid. Hiſt. & Antiq. Univerſ. Oxon. Lib.* 1. *pag.* 138. [l] Dr. Dee's *Annot. in Epiſt. ad Pariſienſem.* [m] *In Libro Fratris* Rog. Bacon. *Computus Naturalium, dicto, cap.* 2. MS. *in Bibl. Coll. Univ. Oxon.*

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Library: Where after he has paſſionatly lamented its *Errors* awhile, *he* gives this ſuccinct Account of it, *viz.* that its being greater than the true *ſolar* Year, was the Cauſe of the going back of the *Equinoxes* and *Solſtices*, and then how all was to be amended.

9. *Quod autem hic intendo* (ſays he [n]) *eſt de correctione* Calendarii *quo utitur* Eccleſia. Julius *quidem* Cæſar *in* Aſtronomia *edoctus complevit ordinem* Calendarii *ſecundum quod potuit in tempore ſuo; & ſicut* Hiſtoriæ *narrant contra* Achorium *Aſtronomum, &* Eudoxum *ejus Doctorem diſputavit in* Egypto *de quantitate Anni* Solaris, *ſuper quam fundatum eſt* Calendarium *noſtrum, unde ſicut* Lucanus *refert, ipſe dixit*

Non meus Eudoxi vincetur faſtibus Annus.

Sed non pervenit Julius *ad veram anni quantitatem quam poſuit eſſe in* Calendario *noſtro* 365 *dies, & quartam diei integram quæ quarta colligitur per quatuor annos, ut in anno* Biſſextili *computetur unus dies plus quam in aliis annis communibus: Manifeſtum autem eſt per omnes computiſtas, antiquos & novos, ſed & certificatum eſt per vias* Aſtronomiæ, *quod quantitas anni* Solaris *non eſt tanta, imo minor; & iſtud minus æſtimatur a ſapientibus eſſe quaſi* 130 *pars unius diei, unde tanquam in* 130 *annis ſuperflue computatur unus dies, qui ſi auferretur, eſſet* Calendarium *correctum quoad hoc peccatum,* i. e.

10. That which I intend here (ſays he) is the Correction of the *Calendar* now in uſe in the *Church*. *Julius Cæſar* indeed being learned in *Aſtronomy*, compleated the *Calendar* very well for his time, and as *Hiſtories* tell us, diſputed in *Egypt* againſt *Achorius*, and his Maſter *Eudoxus*, concerning the Quantity of the *ſolar* Year, on which our *Calendar* is founded, which made *Lucan* bring him in ſpeaking to this Effect:

The Julian *ſhall ne'er be prov'd amiſs,*
By the Eudoxian *Ephemeris.*

But *Julius* never came to the Knowledge of the true Quantity of the *Year*, which he made to conſiſt of 365 Days, and a whole *fourth* part of a Day: which *fourth* part collected at four Years end, made, that in the *Biſſextil* there was one Day more than in any other *Year*: But 'tis manifeſt (ſays

[n] 4° *MS. in Bib. Bod. in Muſæo Protobibliothecarii, pag.* 327.

he)

he) to all *Aſtronomers* both old and new, and 'tis plain from the Rules of *Aſtronomy*, that the Quantity of the *Solar* Year is not ſo much, but leſs; and that as 'tis judged by wiſe Men, by the 130th part of a Day; whence it comes to paſs, that in 130 Years we have one ſuperfluous Day, which were it but taken away, the *Calendar* would be corrected as to this Error.

11. And then he proceeds to ſhew, that upon this account it is that the *Æquinoxes* and *Solſtices* are not fixt, but continually aſcend in the *Calendar*, that in the Beginning of the *Church* they were not where they are now in his time; and in the Concluſion of the Diſcourſe, *Debet autem nunc temporis remedium apponi propter iſtos errores manifeſtos, &c.*[o]. But that now ſome remedy muſt be found for thoſe palpable Errors, and that to take off Scandal from the *Church*; for (ſays he) all the learned in *Aſtronomy* know this, and laugh at the Ignorance of the *Prelates* that ſuffer it. Nay, the Infidel *Arabians*, *Hebrews*, and *Greeks*, abhor the Folly they ſee in the *Chriſtians* in ordering the time they ſet aſide for their greater *Solemnities*: But now *Chriſtians* have ſo much Skill in *Aſtronomy*, that they can amend all theſe things. Therefore your *Holineſs* (meaning *Pope Clement*) may command, *& invenietis homines qui præclara remedia apponent in hac parte.*

12. Thus earneſtly wrote he for the Reformation of the *Calendar*, not only in this but in ſeveral other Books; in one whereof he makes alſo this Complaint, *Non tamen aliquis præſumit tradere* Calendarium *correctum, propter hoc quod* Concilium *generale prohibet ne quis mutet* Calendarium, *ſine licentia ſedis* Apoſtolicæ *generali*[p], *i. e.* Yet no Body preſumes to correct this *Calendar*, becauſe it is forbid by a *General Council* that no Man ſhould offer to alter it, without ſpecial Licenſe firſt obtained of the *Apoſtolick See.* Which Licenſe, I gather at length, was given *him*, for I find *him* in the End of the aforeſaid *Chapter*, mentioning a more correct *Copy* of a *Calendar* ſent to the aforeſaid *Pope* by his Boy *John*, than any *he* had ſent *him* before. *Cum propter feſtinantiam, & propter occupationes in aliis magnas & varias, veſtrum Exemplar non fuit uſquequaque correctum, hic iterum feci tranſcribi, & correxi; & hæc ideo facio, ut certitudinaliter conſiderare & conferre poſſitis de hac materia cum quocunque velitis, i. e.* becauſe upon the account of

[o] *Loco citato ſub finem Paragraphi.* [p] *In Operis minor. part.* 3. 4°. *MS. in Bibliotheca Bodleiana, cap.* 67.

haſte

haſte and various other Buſineſſes intervening, your *Copy* was not ſufficiently correct, I have corrected and tranſcribed it again, that you might conſider and confer about it more certainly with whom you pleaſe. A perfect and fair MS. *Copy* of which *Calendar*, was in the Hands of one Mr. *Theyer*, a Gentleman of *Glocester-ſhire*.

13. From which, or ſome other *Calendar* of his, *Paulus Middleburgenſis* Biſhop of *Foſſombrone*, in the *Dukedom* of *Urbin*, ſtole half of his great Volume, which he calls his *Paulina*, concerning the true time of keeping *Eaſter*, and Day of the Paſſion of our Lord JESUS; directed to Pope *Leo the Tenth*, in order to the Reformation of the *Roman Calendar* and *Eccleſiaſtical Cycles*, written juſt in the ſame Order and Method generally and particularly, as *Roger Bacon* long before had done to *Clement* the *Fourth*; and yet full ſlender mention (ſays Dr. *Dee* [q]) doth this *Biſhop* make of *him*, though his chief Inſtructor in the beſt part of the Matter contained in his *Book*: In which Deſign, though the *Plagiary* were unſucceſsful, his Endeavours being fruſtrated for a time, yet 'twas he that ſtirred up *Nicholas Copernicus* (as the ſame *Nicholas* honeſtly confeſſes in an *Epiſtle* of his to *Paul* the *Third* [r]) more accurately to obſerve the Motions of the *Sun* and *Moon*, and thence to define the Quantities of Years and Months more truly than they were before in the *Julian Calendar*; upon whoſe Foundations *Aloyſius*, and the reſt of the ſumptuous *College* of *Mathematicians* at *Rome* having built their *Reformation*, it is eaſily deducible that whatever has been done in this Matter from the time of Fryar *Bacon*, to that of Pope *Gregory* the *Thirteenth*, muſt in great meaſure be aſcribed to *him*, their whole *Reformation* ſcarce differing from *his*.

14. Only in this (which is well worth the Obſervation) that whereas the *Gregorian Reformers* reduced the *Equinoxes* and *Solſtices* to the places they ſuppoſed they held in the time of the *Nicene Council*, *Bacon* ſeems inclinable to have brought them (and that moſt rationally) to their places, in a much more eminent *Epoche*, *viz.* the *Winter Solſtice* to the tenth of the *Calends* of *January*, and the *Vernal Equinox* to the tenth of the *Calends* of *April*, their true places at the time of Chriſt's Birth: which he proves by a very cogent Argument drawn from the Obſervations of

[q] Dr. *Dee*'s Propoſal to Queen *Elizabeth* and her *Council* concerning the Reformation of the vulgar *Calendar*. *M. S. in Biblioth. C. C. C.* Oxon. *lit. Z. fol.* [r] *In Præfat. in libros revolutionum.*

Ptolomy, who lived but 140 Years after Chriſt; in whoſe time the *Vernal Equinox* was found to be on the eleventh of the *Calends* of *April*: now allowing as before, that it aſcends in the *Calendar* a whole natural Day in 130 Years; if in *Ptolemy*'s time it fell on the eleventh of the *Calends* of *April*, it muſt needs at Chriſt's Birth have been at leaſt on the tenth; and ſo of the *Solſtice* *. According to which Computation they have now gone back in our *Calendar*, ſince Chriſt's time almoſt 13 Days, the Number 130 Days being ſo often to be found in 1676. wanting but 14. Now the *Æra* of Chriſt's Birth being a time of much higher Value, and more to be reſpected by Chriſtians than the *Nicene Council*, in what ever elſe they have exceeded him, I am ſure in this they have fallen ſhort of his *Reformation*.

15. And ſo much for the Invention of the *Teleſcope*, and other *Inſtruments*, by the Aſſiſtance whereof he ſo nearly defined the true Quantities of the *Solar* and *Lunar Years*, that he firſt gave Occaſion to the Reformation of the *Julian Calendar*: wherein if the *Reader* (with me) be convinced, let *him* hither refer thoſe inordinate *Encomiums* by *Kepler*, *Fabricius*, and *Cæſar la Galla*, heaped on *Galilæus* for the one; and whatever elſe of that Nature he ſhall meet with, given to *Paulus Middleburgenſis*, *Copernicus*, or *Aloyſius* for the other.

16. Thus was the Chriſtian World firſt informed in Matters of *Aſtronomy* by *Roger Bacon*, and with ſo much Succeſs here in *England*, that in the next *Century* we meet with *Richard Wallingford* Abbot of St. *Albans*, and *Simon Bredon*, both *Oxford* Men, the moſt eminent for their time in the whole World: who for their Subtilty, and yet Clearneſs of Demonſtration, we find yoaked with no leſs than the great *Albategnius*, by *Lewis Caerlyon* alſo an *Oxford* Man, in his Obſervations of the *Eclypſes*, *An. Dom.* 1482 [f]. where alſo he treats of the *oblique Aſcenſions* of the *Signs* calculated to the *Meridian* of *Oxford*. And quickly after we meet with *William Rede* (after *Biſhop* of *Chicheſter*) and *John Eſchenden* jointly to carry on this Study, as appears from their Treatiſes of the *central Eclypſe* of the *Moon*, and Conjunction of the three ſuperior *Planets* that happen'd *An.* 1345. and the great Conjunction of *Jupiter* and *Saturn*, *An.* 1365. both which were calculated by *William Rede*, and the *Prognoſtications* added by *John Eſchenden* [t]:

* *In Operis Min. part.* 3. *cap.* 69. *MS. in Bibliotheca Coll. Univerſ.* [f] 4° *MS.* 79. *inter Codices MS.* Seldeni. [t] *Fol. MS.* 176. *inter Codices* Digby.

From

From which *Eclypſe*, and the firſt *Conjunction*, he fore-told the *Epidemical Peſtilence* that followed in the Year 1349; which beginning in *Turky*, ſpread all over *Syria* and *Greece*; whence it came into *Italy*, *Spain*, and *France*, and at length into *England*. To theſe add *John Somer* and *William Wyrceſter*, alſo moſt eminent *Aſtronomers*; the former whereof corrected the *Calendar* perhaps yet more accurately than *Bacon*[u]; and the latter wrote a Verification of all the *fix'd Stars*, as to their *Longitude* and *Latitude*, for the Year 1440[w]; with ſome other *Aſtronomical* Matters, at the Inſtance of his Patron Sir *John Falſtoff*.

17. Great we ſee was the Increaſe of this ſort of *Learning*, even in thoſe Days, yet that former Ages may not carry away the whole Honour, let us alſo make an Eſtimate of its *modern Advancements*; ſuch as it received from *Thomas Lydiat*, formerly Fellow of *New-College*, and Rector of *Alkerton* in this *County*, who defining a yet truer *Period* than any of the *former*, of the *Sun* and *Moon*'s Motion (without which, there could be no accurate *Syſtem* or *Calendar* of *Years*, *Months* and *Days*) moſt happily firſt contrived the *Octodeſexcentenary Period*: *ipſe primus, abſit dicto invidia, noſtro ſeculo obſervavi*, are his own Words[x]: Which *Period*, though till now not ſo certainly known, by Learned Antiquity was called the *great Year*, as is manifeſt from *Joſephus* his Hiſtory of the *Jews*[y], where ſpeaking of the great Advantages our *Fore-fathers* had in *Aſtronomy*, he ſays, Πλέοι ζῆν ἢ Θεὸν αὐτοῖς ὠφελεῖν, ἅπερ ἐκ τοῦ ἀσφαλῶς αὐτοῖς θεωρεῖν, μὴ ζῆσαι ἑξακοσίους ἐνιαυτούς, ἁφ' τοσούτων ὁ μέγας ἐνιαυτὸς πληροῦται· *i. e.* that 'tis probable *God* gave them a longer Life, that they might fully underſtand the *Theorems* of *Aſtronomy*, which they could not well do, unleſs they lived ſix hundred *Years*; for the *great Year*, ſays he, is accompliſh'd in that Number of *Years*.

18. Which *Lydiat* found to come ſo near the Truth, that there needed but the Abatement of eight in ſix hundred, his true *Period* conſiſting of 592 Years, and that (according to *Geminus*) of whole *Years*, whole *Months*, and whole *Days*, as a *Period* ought to do[z], *viz.* of 592 entire *ſolar Years*, 7322 entire *Months* (whereof 218 are *intercalary*) 216223 entire *Days*, and 30889 entire *Weeks*; defining every *Lunar Month* to conſiſt of 29 Days, $12^h, 44', 3', 12'', 44''', 3^v$,

[u] *Quod vid. inter Codices* Digby, 12° *MS.* 5. [w] *MS. inter Codices* Laud, 12°. *B.* 23. [x] Lydiati *Ep. Aſtronom. de Anni Solaris menſura.* [y] *Lib.* 1. *cap.* 4. *ſub finem.* [z] *Periodus debet comprehendere*, ὅλας ἡμέρας, καὶ ὅλας μῆνας καὶ ὅλους ἐνιαυτούς. Geminus *in libro* Φαινομένων.

12^vi. And the *ſolar Year* of 365 *Days*, 5^h, 47', 50'', 16''', and $\frac{8}{37}$; or 5^h and $\frac{59}{74}$; or 365 *Days* and $\frac{1}{128}$ part of a *Day*: So that the whole *Period*, or 592 *Lydiatean Years*, do anticipate ſo many *Julian* ones by five *Days*.

19. According to this *Period* found out in *An.* 1605. exceeding the *Dionyſian* but 60 *Years*, he calculated the middle Motions of the *ſeven Planets* for the *nine* firſt *Periods* entirely, and the *tenth* ſo far forth as it had gone in his time; (ſome MS. fragments of which *calculations* I had once in my Poſſeſſion, but diſpoſed of them to the Worſhipful Dr. *Lanphire*, then Principal of *Hart-Hall*, carefully to be preſerved amongſt the reſt of his Writings.) And in *Anno* 1620. *viz.* in the laſt Year of the firſt half of his *tenth Period*, he put it forth, with his *Menologium*, or Reformation of the *Calendar*, which he oppoſed to the *new*, but confuſed, abſurd, and falſe *Pontifical Gregorian Year*, contrived by the ſumptuous *College* of *Mathematicians* at *Rome*; and defended it againſt the obtractations of *Joſeph Scaliger*[a], a Man, 'tis true, of great Learning, but withal ſo Confident and Imperious, ſo Abuſive and Aſſuming, that whenever he wanted Arguments for the ſupport of his Cauſe, he always ſought Revenge upon the perſon of his *Adverſary*.

20. Which was manifeſtly the caſe of modeſt *Lydiat*, whom in an *Epiſtle* to *Richard Thomſon* (his correſpondent in *England*) he calls, *the greateſt Monſter that ever* England *produced*[b]; and in another to the ſame *Thomſon*, the *veryeſt Fool in the whole World*, and that 'twas *below his Dignity, nor had he Leiſure to write againſt ſuch a Beetle*[c]. But herein (as the Reverend Dr. *Heylin* very well notes in another caſe) we muſt pardon *Joſeph*; *for had not Scorn and Contempt been part of his Eſſence, he had neither been a* Scaliger, *nor the Son of* Julius[d], who ſcrupled not to paſs this raſh Cenſure on the whole *Engliſh* Nation; that we are *Perfidi, inflati, feri, contemptores, ſtolidi, amentes, inertes, inhoſpitales, immanes*[e]. In which very Act yet I think he proves nothing, but that moſt of thoſe *Epithets* rather belong to *himſelf*.

21. If it be Objected that *Joſeph* did not ſo far *patrizare*, but that he ſpake Honourably of ſome of the *Engliſh*, ſuch as *Wotton*, *Savil*, *Cambden*[f], *Reynolds*[g]: it muſt be Anſwered, That theſe touched not the *apple* of his *Eye*, nor endea-

[a] *Vid.* Lydiati *Solis & Lunæ periodum in Titulo.* [b] Joſ. Scaligeri *Epiſtolar. lib.* 3. *Epiſt.* 240. [c] Joſ. Scaliger. *Epiſtol. lib.* 3. *Epiſt.* 241. [d] *Coſmograph. in Cald. Aſſyr. & Meſopot. ſub. finem.* [e] Jul. Cæſar Scal. *Poetices, lib.* 3. *cap.* 16. [f] Joſ. Scalig. *Epiſtol. lib.* 3. *Epiſt.* 232. [g] *Ibid. lib.* 4. *Epiſt.* 446.

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voured the ruin of his great *Diana*, the *Julian Period*, of which he conceited himſelf the *Inventor*: which yet ſince by an indifferent, and that a competent *Judge*, is given to *Robert Lorringe* an *Engliſh* Biſhop of *Hereford*, who lived 500 Years before *Scaliger*'s Invention [h]. 'Tis true, he fitted it to *Chronological* Uſes; but whileſt in the midſt of his glorious Attempts, behold him ſhaken by meek, and modeſt *Lydiat*, the happy *Inventor* of a more accurate *Period*, whereby he ſo diſturbed and confounded all his *Supputations*, that (if we may believe the moſt Learned of the Age) he laid his *angry Rival* flat upon his back.

22. And ſo much concerning the *Lydiatean Period*, of which, becauſe ſo much already in Print, I ſhall not add more, only in what *Years* of as many of *them*, as have already been (which poſſibly may not be unacceptable to the *Reader*) the moſt conſiderable *Æra*'s of the World have happen'd.

	Years of the World.	*Years of the* Lydiatean *Periods.*	
The Flood.	1657.	473.	(3)
Birth of Iſaac.	2109.	333.	(4)
Exodus.	2509.	141.	(5)
The Temple.	2988.	28.	(6)
Emp. of Nebuchadn.	3401.	441.	(6)
Emp. of Cyrus.	3471.	511.	(6)
Emp. of Alexander the Great.	3675.	123.	(7)
Emp. of Jul. Cæſar.	3956.	404.	(7)
Baptiſm of Chriſt.	4033.	481.	(7)
The Dionyſian *Year of our Lord*, 1620.	5624.	296.	(10)
The Y. of our L. 1676.	5680.	352.	(10)

23. If I deſcend yet lower to *Perſons* lately living, we ſhall daily find *Aſtronomy* receiving new *Advancements*, particularly from the Right Reverend Father in God, *Seth* Lord Biſhop of *Sarum*, one of the moſt cordial *Promoters* of this Undertaking: who rather embracing the Opinions of *Diogenes*, *Apollonius Myndius*, of the *Chaldees*, and at length of *Seneca*; That *Comets are perpetual Stars, and carry'd about in a continued Motion*; than of *Kepler*, who thought them ſtill produced *de Novo*, quickly periſhing again; or

[h] *In Præfat. in Annales Jac. Uſſerii, Archiep. Armachan.*

of

of *Gaſſendus*, who held indeed they might be *Corpora æterna*, but yet that they always moved in *ſtraight Lines*; he firſt propos'd this new *Theory* of them, *viz.* that it was much more probable they might rather be carry'd round in *Circles* or *Ellipſes* (either including or excluding the *Globe* of the *Earth*) ſo great, that the *Comets* are never viſible to us, but when they come to the *Perige*'s of thoſe *Circles* or *Ellipſes*, and ever after inviſible till they have abſolved their *Periods* in thoſe vaſt *Orbs*, which by reaſon of their ſtanding in an oblique, or perpendicular Poſture to the *Eye*, he demonſtrated might well ſeem to carry them in *ſtraight Lines*; all *Circles* or *Ellipſes* ſo poſited, projecting themſelves naturally into ſuch *Lines*: which *Theory* was firſt propoſed in a *Lecture* here at *Oxford*, and afterward ſet forth in the Year 1653. The Right Reverend Father in God, *Seth* Lord Biſhop of *Sarum*, and my very good *Lord*, being then *Profeſſor* of *Aſtronomy* in this *Univerſity*.

24. In the ſame Year, the ſame Right Reverend, and moſt accompliſh'd *Biſhop*, firſt *Geometrically* demonſtrated, the *Copernico-Elliptical Hypotheſis* to be the moſt *Genuine*, *Simple* and *Uniform*, the moſt eaſie and *intelligible*, anſwering all *Phænomena* without Complication of Motions, by *Excentrics*, *Epicycles*, or *Epicyc-Epicycles*. That the *Excentricities* of the *Planets* and their *Apoge*'s according to the *Ptolomaic Hypotheſis*, and the *Aphelions* according to the *Copernican*, might all be ſolved by a ſimple *Elliptical* Line, was firſt indeed noted by *Kepler*, but how their *proper* and *primary Inequalities*, or *Anomaliæ Coæquatæ*, ſhould thence be demonſtrated *Geometrically*, he profeſt he knew not, and utterly deſpaired it would ever be done: which ſtirred up the Learned *Iſmael Bullialdus* to attempt the Removal of this Diſgrace to *Aſtronomy*, which accordingly he thought he had done, finding the *Method* of the *Aphelions*, and demonſtrating (at leaſt as he thought) the firſt *Inequalities Geometrically*, and making *Tables*; calling his work *Aſtronomiam Philolaicam*.

25. But how far he came ſhort of what he pretended, was ſo plainly and modeſtly made appear by the Reverend *Biſhop*, in a Book which he entituled, *Inquiſitio in* Iſmaelis Bullialdi *Aſtronomiæ Philolaicæ fundamenta, Edit.* Oxonii, 1653. that the Ingenious *Bullialdus* himſelf, ſent him a *Letter* of Thanks, and Recognition of his *Errors*. Where alſo he further ſhews, that although *Bullialdus* had not, and *Kepler* thought no man could, rightly *calculate* the firſt

firſt *Inequalities* according to the Rules of *Geometry*, *i. e.* out of the known *middle Motions* of the *Planets* (or true places of the *Aphelions*) accurately find *a priori*, their true or *appearing Motions*: That yet there were *Methods* by which it might be done, whereof he propounded *two* in the ſame *Book*, and demonſtrated them, which afterwards applying to all the *primary Planets*, he ſet forth both *Elliptical* and *Circular Aſtronomy*, ſhewing how the *Phænomena*, according to both *Hypotheſes*, might be *Geometrically* made out, which he called his *Aſtronomia Geometrica*, Edit. Lond. Ann. 1656.

26. The *Elliptical Hypotheſis* has received yet further Advancement from the Learned Mr. *Edmund Hally*, Savilian Profeſſor of *Geometry* in the Univerſity of *Oxford*, who has amongſt many other excellent Performances in that *Science*, ſhewed us a direct and *Geometrical Method* for finding the *Aphelions*, *Excentricities*, and *Proportions* of the *Orbs* of the *primary Planets*, without ſuppoſing the *Equality* of the *Angle* of *Motion* at the other *Focus* of the *Planets Ellipſis*, which has been hitherto always done amongſt *Aſtronomers*[1]. 'And for the greater Improvement of *Aſtronomical* Know-'ledge, hath added (as a Supplement to *Tycho*'s) a Catalogue, 'containing 350 Stars at the *South-pole*, which he obſerved 'during his Stay at St. *Helens*: who, by moſt acute and 'ſubtle Diſquiſitions hath framed ſo curious a *Theory* of the 'Variation of the *Magnetical Compaſs*, that after he hath 'finiſhed his Thoughts on this Head, we may expect to ac-'count for one of the principal *Phænomena* of Nature: eſpe-'cially ſince the *Poles* of this exterior Shell of Earth are 'found to be diſtant from the *Poles* of diurnal Rotation, and 'that there muſt be a Period of the Revolution of this in-'ternal *Nucleus*, after which the Variations will return 'again as before: Laſtly (as a great Acceſſion to *Natural* '*Hiſtory*) the ſame Ingenious Perſon has aſſigned the *Phy-'ſical* Cauſe of the *Trade Winds* and *Monſoons*, obſervable 'in the Seas between and near the *Tropicks*, by which 'and many other excellent Diſſertations in our *Philoſophical* 'Tranſactions, he hath laid a Foundation for Poſterity to 'build an infinite Superſtructure.

27. To which may be added ſeveral other *Improvements* this *Science* has received from that incomparable Perſon Sir *Chriſtopher Wren*, late *Profeſſor* here: who before any thing of *Hugenius* appeared on that *Subject*, from his con-

[1] *Philoſoph. Tranſact. Numb.* 128.

ſtant

ſtant *Obſervations* of *Saturn*, ſtated a *Theory* of that *Planet*; and of the *Moon*'s *Libration*. He has attempted alſo (and I believe by this time performed) a *Selenography* by Meaſure, what we have yet of that kind being rather *Pictures*, than accurate *Surveys* or *Maps* of the *Moon*: To this purpoſe he contrived a *Lunar Globe*, repreſenting not only the *Mountains* and *Valleys* in ſolid Work, but the ſeveral Degrees of *Whiteneſs* and *Blackneſs* on the Surface, which if turned to the Light, ſhews all the *Menſtrual Phaſes* of the *Moon*, with the ſeveral Appearances that ariſe from the *Shadows* of the *Hills* and *Vales*.

28. He has made *Maps* of the *Pleiades*, and other *Teleſcopial Stars*, and propoſed ways to ſolve the great *Queſtion* concerning the *Earth*'s Reſt or Motion by ſome ſmall *Stars* about the *North Pole*, to be ſeen only in large and well made *Teleſcopes*: To which *Inſtrument* he has added many ſorts of *Rete*'s, *Screws*, and *Apertures*, to take in more or leſs *Light*, by opening and ſhutting like the *Pupil* of the *Eye*, according as the *Obſerver* thinks fit; and has improved the *Manufacture* of grinding good *Glaſſes*. He has alſo made two *Teleſcopes* to open with a *Joynt* after the manner of a *Sector*, whereby *Diſtances* may be taken to *half Minutes*, and no Differences found in the ſame *Obſervation* often repeated, the *Inſtrument* not being liable to any Prejudice by warping or luxation. He has contrived and hung *Quadrants*, *Sextants*, and *Radii*, much better than heretofore, by which, *Aſtronomical Obſervations* may be made more accurate and eaſy. Of all which ingenious and uſeful *Inventions*, there are much more full and *elegant Relations*, in the moſt accurate *Hiſtory* of the *Royal Society*[k]: However, they being moſt, if not all of them found out *here*, or at leaſt whilſt their *Author* was *Aſtronomy Profeſſor* in this *Univerſity*, I could not but mention them with relation to this place, as I ſhall ſome other Matters which owe their *Invention* to the ſame *worthy Perſon*.

29. And theſe are all the *modern Advancements* in *Aſtronomical* Matters I can at preſent think of, except a late *Invention* of one *R. Holland*, once Teacher of *Mathematicks* in this *City* for many Years, who has ſhewed us a way to get the *Angle* of *Parallax* of a *Comet* or other *Phænomenon* at two *Obſervations* to be taken in any one Station or Place of the *Earth*, and thereby the Diſtance from the *Earth*: whereof no more, there being a ſhort account of the whole

[k] Hiſtory of the Royal Society, *Part.* 2. *ſub finem.*

Con-

Contrivance ſet forth by *himſelf*, and Printed at *Oxford*.

30. Having done with the *Inventions* and *Improvements* that concern the *Heavens*, come we next to thoſe belonging to the *ſublunary World*, whereof the ſame Ingenious Sir *Chriſtopher Wren* has furniſh'd us with ſeveral; as of exquiſite Subtilty, ſo of excellent Uſe: Such as his Contrivance to make *Diaries* of *Wind* and *Weather*, and of the various Qualifications of the *Air*, as to *Heats*, *Colds*, *Drought*, *Moiſture*, and *Weight*, through the whole *Year*; and this in order to the *Hiſtory of Seaſons*: with Obſervations, which are the moſt healthful or contagious to *Men* or *Beaſts*; which, the Harbingers of *Blights*, *Meldews*, *Smut*, or any other Accidents attending *Men*, *Cattle*, or *Grain*; ſo that at length being inſtructed in the *Cauſes* of theſe *Evils*, we may the eaſier *prevent*, or find *Remedies* for them.

31. Now that a conſtant Obſervation of theſe Qualities of the *Air*, both by Night and Day might not be inſuperable; he contrived a *Thermometer* to be its own *Regiſter*, and a *Clock* to be annexed to a *Weather-cock*, which moves a *Rundle* covered with white Paper; upon which the *Clock* moving a black-lead *Penſil*, the *Obſerver*, by the Traces of the *Penſil* on the Paper, may certainly know what *Winds* have blown, during his Sleep or Abſence, for 12 Hours together. He has alſo diſcover'd many ſubtile ways for eaſier finding the Degrees of *Drought*, and *Moiſture*, and the Gravity of the *Atmoſphere*; and amongſt other Inſtruments, has *Ballances* (alſo uſeful for other purpoſes) that ſhew the Preſſure of the *Air*, by their eaſy (I had almoſt ſaid ſpontaneous) Inclinations [1].

32. He has made Inſtruments whereby he has ſhewn the Mechanical reaſon of *ſailing* to all *Winds*; and others of *Reſpiration*, for ſtraining the *Breath* from thick Vapors, in order to Tryal whether the ſame *Breath* thus purified will ſerve turn again. Which *Experiments*, however nice they may ſeem, yet being concerned about a Subject ſo nearly related to *Man*, that he always lives in it, and cannot long without it, and is well or ill according to its Alterations, the minuteſt Diſcoveries of its *Nature* or *Qualifications* ought to be valuable to us.

33. Wherein yet we have been aſſiſted by nothing more, than the *Pneumatick Engine*, invented here at *Oxford*, by the moſt Learned and Ingenious, the Honourable *Robert Boyle*

[1] *Ibidem.*

Eſq; with the concurrent Help of that exquiſite Contriver, Mr. *Robert Hook*, commonly called the *Air Pump*; ſo different a thing from the *Inſtrumentum Magdeburgicum*, deviſed by *Otto Gericke*[m], an ingenious *Conſul* of that *Republick*, that it can ſcarce be reckoned an Improvement of *that*, but a new *Engine*; although it muſt not be denied, but the *Magdeburg Experiment* gave Occaſion to its *Invention*. By the aſſiſtance whereof, that *Noble Philoſopher* hath accurately examined the *Elaſtical Power*, *Preſſure*, and *Weight*; *Expanſion* and *Weakneſs* thereupon, of this *Element*; and thereby found out ſo many things *new*, relating to the Height and Gravity of the *Atmoſphere*, Nature of a *Vacuum*; *Flame*, and *Excandeſcence of Coals*, *Match*, firing of *Gun-powder*; Propagation of *Sounds*, *Fluidity*, *Light*, *Freezing*, *Reſpiration*, *&c.* that to give an account of them all, according to the Merits of the *Experiments*, would be to tranſcribe the whole *Treatiſe* of that *Honourable Author* ſet forth on this Subject; whither I refer the *Reader* for further Satisfaction, and ſo to the reſt of his *Works* upon ſeveral other Subjects; many of his numerous *Inventions* and *Improvements*, wherewith he has ſo highly obliged the World, having been made in this place.

34. Whereof I ſhall mention no more (it being indeed uncertain as to moſt of them, which were made here, which at *London*, and which at other *places*) only the *Barometer*, a well known Inſtrument, alſo invented here by the ſame *Noble Perſon*, whereby the Gravity of the *Atmoſphere* has been dayly obſerved by the Reverend and Learned Dr. *John Wallis*, for about ſix Years together: in all which time he found the *Quick-ſilver* in the *Tube*, never to aſcend much above 30 Inches, and never to deſcend much below 28, which he takes to be the whole *Latitude* of its *Variation*. He alſo obſerved, for moſt of that time, the Temper of the *Air* by a *Thermometer*, whereof he had the Notes by him, which were very particular for every Day.

35. Which latter *Inſtrument*, though of very ancient *Invention*, there having being one of them found by *Robert de Fluctibus* graphically delineated, in a MS. of 500 Years Antiquity at leaſt[n]: yet it has ſtill received other uſeful *Advancements* (beſide that above mention'd) from that curious Artiſt Sir *Chriſtopher Wren*, who finding the uſual *Thermometers* not to give ſo exact a Meaſure of the *Air*'s

[m] Gaſp. Schotti *Magiæ Univer. part.* 3. *lib.* 7. *cap.* 6. [n] Moſaical Philoſophy, *lib.* 1. *cap.* 2.

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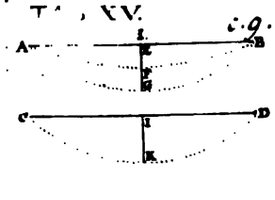
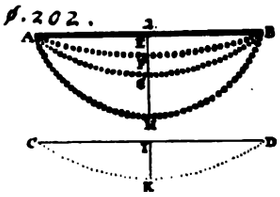
TAB. XV.

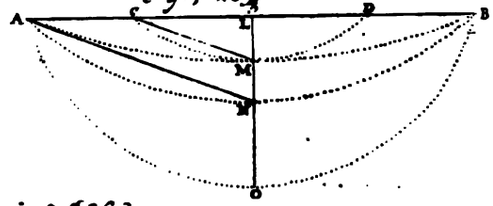
ad pag. 335

c.g. p. 202.

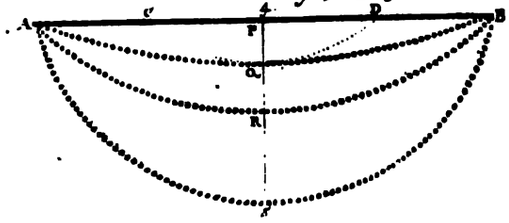




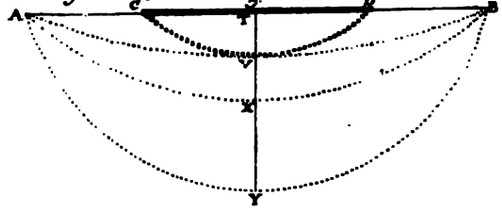
c.g. p. 203.



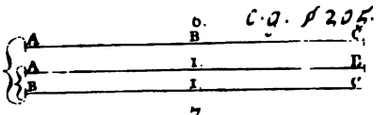
c.g. p. 203.



c.g. p 203.



6. c.g. p 205.



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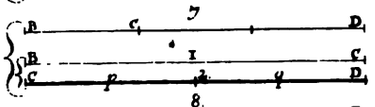
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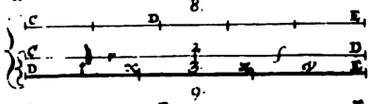

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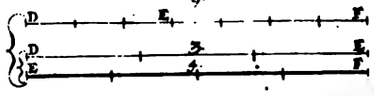

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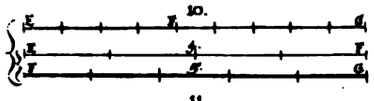

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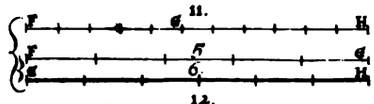

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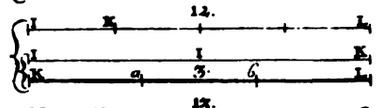

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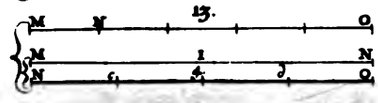

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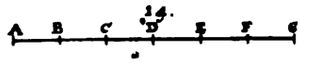

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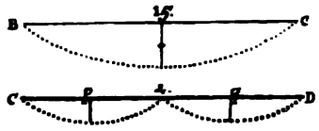

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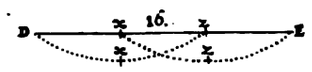

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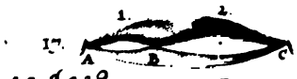
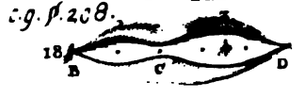


c.g. p. 208.

18.



19.

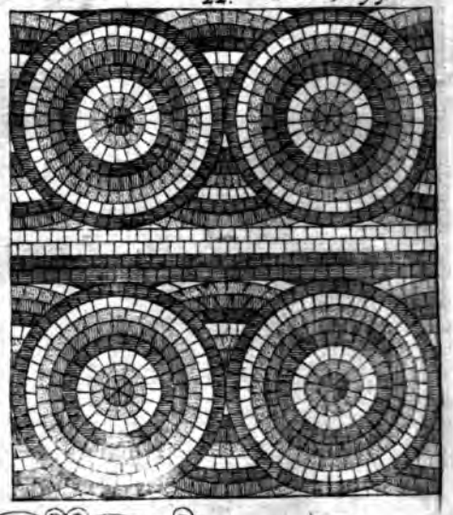
c.10. p. 3.

20. AV

p. 5

21. p. 6

22. c.10. p. 55.



23.

c.10. p. 58.

24.

To the Worp.ll
The worthy and much Honored
Gentlemen IOHN and CHARLETON STONE Esqrs.
This 15th Table
Consisting partly of Antiquities whereof the 23.d and
24th were found in the grounds near their Seat at
Brightwel; in memory of their favours is gratefully
Dedicated by
R. P. L. D.

Extenſion, by reaſon the Gravity of the *Liquor*, as it ſtands higher or lower in the Glaſs, weighs unequally on the *Air*, and gives it a Contraction and Extenſion, beſide what is produced by *Heat* and *Cold*; he therefore invented a *Circular Thermometer*, in which the *Liquor* can occaſion no ſuch Fallacy, it remaining continually of one *height*, and moving the whole *Inſtrument* like a Wheel on its Axel[o].

36. Amongſt other *Aerotechnicks*, here is a Clock, lately contrived by the Ingenious *John Jones* LL. D. and Fellow of *Jeſus College Oxon*, which moves by the *Air*, equally expreſſed out of *Bellows* of a *Cylindrical* Form, falling into Folds in its Deſcent, much after the manner of Paper *Lanterns*: Theſe, in place of drawing up the Weights of other *Clocks*, are only filled with *Air*, admitted into them at a large Orifice at the Top, which is ſtop'd up again as ſoon as they are full, with a hollow *Screw*, in the Head whereof there is ſet a ſmall *Braſs Plate*, about the Bigneſs of a Silver Half-penny, with a hole perforated ſcarce ſo big as the ſmalleſt Pin's Head: through this little hole the *Air* is equally expreſſed by *Weights* laid on the Top of the *Bellows*, which deſcending very ſlowly, draw a *Clock-line*, having a Counterpoiſe at the other End that turns a Pully-wheel, faſtened to the *Arbor* or *Axis* of the *Hand* that points to the *Hour*: which Device, though not brought to the intended Perfection of the Inventor, that perhaps it may be by the help of a *Tumbrel* or *Fuſie*, yet highly deſerves mentioning, there being nothing of this Nature, that I can find, amongſt the Writers of *Mechanicks*.

37. To which may be added, a hopeful *Improvement* of that uncommon *Hygroſcope*, made of two *Deal*, or rather *Poplar Boards*, mention'd in our *Engliſh Philoſophical Tranſactions*[p], contrived by my Ingenious and Learned Friend *John Young* M. B. late of *Magdalen Hall*, who rationally concluding, that the *Teeth* of the thin piece of *Braſs* placed acroſs the Juncture of the two *Boards*, muſt needs in its Paſſage from bearing on one ſide of the *Teeth* of the *Pinion*, to the other, upon Change of Weather, make a ſtand as it were in reſpect of the Motion of the *Axel* of the *Hand*; thinks a pretty ſtiff *Spring* cut on the under ſide, after the manner of a fine *File*, placed flat and not edge-ways, and bearing pretty hard upon an *Axel* of *Copper*, may turn the Hand upon Change of *Weather* in the *Punctum* of Rever-

[o] Hiſtory of the Royal Society, *part.* 2. *ſub finem.* [p] *Philoſoph. Tranſact. numb.* 127. *and* 129.

ſion, without any more than a negative Reſt: which being an Opinion ſo very rational and unlikely to fail, when brought to the Teſt, I thought fit to propound it to the *Ingenious*, though the *Preſs* would not give us leave firſt to experiment it our ſelves. Whence I proceed,

38. To ſuch *Arts* as relate to the *Fire*, which I have placed next, in regard we have Knowledge of no other but what is *Culinary*, that in the *Concave* of the *Moon* being only a *Dream* of the *Ancients*. Amongſt which, we muſt not forget the perpetual, at leaſt long-lived *Lamps*, invented by the Right Worſhipful Sir *Chriſtopher Wren*; nor his *Regiſters* of *Chymical Furnaces* for keeping a conſtant Heat in order to divers Uſes; ſuch as Imitation of Nature in the Production of *Foſſiles, Plants, Inſects; hatching* of *Eggs*, keeping the Motions of *Watches* equal, in Reference to *Longitudes* and *Aſtronomical* Uſes, and ſeveral other Advantages [q].

39. But amongſt all the *Fire-works* ever yet produced by the Art of Man, there is none ſo wonderful as that of *Fryar Bacon*, mention'd in his Epiſtle *ad Pariſienſem*, where ſpeaking of the ſecret Works of *Nature* and *Arts*, he has theſe Words, *In omnem diſtantiam quam volumus* poſſumus *artificialiter, componere ignem, comburentem ex ſale Petræ, & aliis* [r]; which *alia*, as the Reverend and Learned Dr. *John Wallis* ſaw it in a MS. Copy of the ſame *Roger Bacon*, in the Hands of the Learned Dr. *Ger. Langbain*, late Provoſt of *Queens College*, were *Sulphur*, and *Carbonum pulvis*: concerning which, after a while he further adds: *Præter hæc* (i. e. *combuſtionem*) *ſunt alia ſtupenda naturæ, nam ſoni velut Tonitrus, & coruſcationes poſſunt fieri in aere, imo majore horrore, quam illa quæ fiunt per naturam: Nam modica materia adaptata, ſc. ad quantitatem unius pollicis, ſonum facit horribilem & coruſcationem oſtendit violentem, & hoc fit multis modis quibus Civitas aut Exercitus deſtruatur. ----Igne exſiliente cum fragore inæſtimabili----Mira hæc ſunt ſi quis ſciret uti ad plenum in debita quantitate & materia.*

40. That is, That of *Salt-petre*, and other matters, *viz. Sulphur*, and the *Duſt of Coal*, he could make *Fire* that ſhould burn at what diſtance he pleaſed; and further, that with the ſame matter he could make Sounds like *Thunder*, and Coruſcations in the *Air* more dreadful than thoſe made by *Nature*: For, ſays he, a little of this Matter rightly

[q] *Hiſtory of the Royal Society, Part.* 2. *ſub finem.* [r] *In Epiſt. ad Pariſienſem, cap.* 6.

fitted,

fitted, though not bigger than one's Thumb, makes a horrible Noiſe, and ſhews a violent Coruſcation, which may be ordered many Ways; whereby a *City* or *Army* may be deſtroyed---the *Fire* breaking forth with an unſpeakable Noiſe ---which are wonderful things, if a *Man* knew exactly how to uſe them in due Quantity and Matter.

41. Whence 'tis plain, he either *invented* or knew *Gunpowder*, though I think we cannot allow him leſs than the firſt, till we find out an ancienter *Author* for it *, which if no Body ever does (as 'tis manifold Odds they never will) in all Probability it was *invented* here at *Oxford*, where he made the reſt of his affrightening *Experiments*. And that out of his Works, *Conſtantinus Anckliten* of *Friburg* [t], or *Bertholdus Swartz* [t], and the reſt of the *Improvers*, in all likelihood might have their pretended Inventions, though we allow him not quite ſo *explicit* as in the *Copy* of the Reverend and Learned Dr. *Langbain*, but that as 'tis conjectured by Dr. *Dee* [u], he ſomewhat concealed his Invention in the word [*aliis*] well knowing it might be dangerouſly deſtructive to *Mankind*.

42. As for *Water-works* invented or improved in this *County*, ſome concern Profit, and others only Pleaſure. Of the firſt ſort, is an Inſtrument of Sir *Chriſtopher Wren*'s, that meaſures the Quantity of *Rain* that falls, which as ſoon as 'tis full, empties its ſelf, ſo that at the Year's end 'tis eaſie to compute how much has fallen on ſuch a Quantity of *Ground* for all that time; and this he contrived in order to the Diſcovery of the *Theory* of *Springs*, *Exhalations*, &c. And ſecondly, other Inſtruments whereby he hath ſhewn the *Geometrical Mechany* of *Rowing*, *viz.* that the *Oar* moves upon its *Thowle*, as a *vectis* on a yielding *fulcrum*, and found out what degree of *Impediment* the *Expanſion* of a Body to be moved in a liquid *Medium* ordinarily produces in all Proportions, with ſeveral other matters in order for laying down the *Geometry* of *Sailing*, *Swiming*, *Rowing*, and the *Fabrick* of Ships [w].

43. Hither alſo belong the *Locks* and *Turn-pikes* made upon the River *Iſis*, the 21ſt of King *James*, when it was made Navigable from *Oxford* to *Bercot*, which are abſolutely neceſſary for that Purpoſe, on ſhallow *Rivers* that have alſo

* Baconus *fatis conceſſit, Anno* 1292. *near* 100 *Years before any of the other pretended Inventions.* [t] *Vid. Guid. Pancirolli rer. memorab. recens Invent. part.* 2. *tit.* 18. [t] *Vid. Step. Forcatulum J. C. de Gallorum Imperio & Philoſoph. lib.* 4. *ſub finem.* [u] Dr. Dee's *Annotations in Epiſt. ad Pariſienſem.* [w] *Hiſtory of the Royal Society, Part.* 2. *ſub finem.*

great

great *Falls*, to keep up the *Water*, and give the *Veſſels* an eaſie Deſcent. For the firſt whereof, provided the Fall of Water be not great, a *Lock* will ſuffice, which is made up only of Bars of Wood called *Rimers*, ſet perpendicularly to the bottom of the Paſſage (which are more or leſs according to its Bredth) and *Lock-gates* put down between every two of them, or Boards put athwart them, which will keep a Head of Water as well as the *Turn-pike* for the Paſſage of a *Barge*, but muſt all be pulled up at its Arrival, and the Water let go till there is an Abatement of the Fall, before the *Boat* may paſs either down or upwards; which, with the Stream, is not without violent Precipitation; and againſt it, at many places, not without the Help of a *Capſtain* at Land; and ſometimes neither of them without imminent Danger.

44. But where the Declivity of the *Channel*, and fall of Water is ſo great, that few *Barges* could live in the Paſſage of them, there we have *Turn-pikes*, whereof there are three between *Oxford* and *Bercot*; one at *Iſley*, another at *Sanford*, and a third at *Culham* in the *Swift-ditch*, which was cut at that time when the *River* was made Navigable; and are all thus contrived. Firſt, there are placed a great pair of *Folding-Doors*, or *Flood-Gates* of *Timber* croſs the *River*, that open againſt the Stream and ſhut with it, not ſo as to come even in a ſtraight Line, but in an *obtuſe Angle*, the better to reſiſt and bear the Weight of the *Water*, which by how much the greater it is, by ſo much the cloſer are the *Gates* preſſed; in each of which *Flood-gates* there is a *Sluce* to let the Water through at Pleaſure, without opening the *Gates* themſelves. Within theſe, there is a large Square taken out of the *River*, built up at each ſide with Free-ſtone, big enough to receive the largeſt *Barge* afloat; and at the other end another Pair of *Flood-gates*, opening, and ſhutting, and having *Sluces* like the Former. Which is the whole *Fabrick* of a *Turn-pike*.

45. At the uppermoſt Pair of theſe *Gates* the Water is ſtopt, which raiſes it in the *River* above, and gives the *Veſſels* Paſſage over the *Shallows*, which when come to the *Turn-pikes*, the *Sluces* are firſt opened, and the Water let into the *Square* or incloſed Space between the two Pair of *Gates*, where it muſt neceſſarily riſe (the lower Gates being ſhut) till at length it comes to be level with the Surface of the *River* above: when this is done, the upper Stream then making no ſuch Preſſure on the *Gates* as before,

fore, they are eaſily opened by two or three *Men*, and the *Veſſels* let in one at a time; which done, they ſhut thoſe upper *Gates* and *Sluces* as before: Then they open the *Sluces* of the *Gates* at the other end of the *Turn-pike*, and let the *Water* by Degrees out of the *incloſed Square* till it is ſunk down, and the *Veſſel* with it, level with the *River* below, and then open the *Gates* themſelves, and let the *Veſſel* out; the upper *Gates* all the while being drove too, and kept ſo faſt by the *Water* above, that little of it can follow. And thus the *Boats* go down Stream.

46. But when they return, they are firſt let into the *incloſed Space* (where the *Water* ſtands conſtantly level with that of the lower *Channel*) at the lower *Gates*, which as ſoon as ſhut again, the *Sluces* are open at the uppermoſt *Gates*, and the *Water* let in, till it riſes with the *Boat* upon it, to be equal with that of the *River* above: this done, the upper *Gates* are eaſily opened as before, there being no Preſſure upon them, and the *Boat* let out. So that notwithſtanding the *Channel* has much ſteeper *Deſcents* where theſe *Turn-pikes* are ſet, than at any of the *Locks*, yet the *Boats* paſs at theſe with much more Eaſe and Safety. Notwithſtanding theſe Proviſions, the River *Thames* is not made ſo perfectly *Navigable* to *Oxford*, but that in dry times, *Barges* do ſometimes lie aground three Weeks, or a Month, or more, as we have had ſad Experience in paſt *Summers*; which in great meaſure no doubt might be prevented, were there a convenient number of *Locks*, or *Holds* for *Water*, made in the River *Cherwel* above *Oxford*, to let down *Flaſhes* as Occaſion ſhould ſerve; and ſo again out of the River *Kennet* near *Reading*, the *Lodden*, &c.

47. Not impertinent hereunto is a Contrivance for *Fiſh-ponds*, that I met with at the Right Worſhipful Sir *Philip Harcourt*'s at *Stanton Harcourt*, where the *Stews* not only feed one another, as the *Ponds* of the Right Honourable the Earl of *Clarendon* at *Cornbury*, the Learned *James Tyrril*'s Eſq; at *Shotover Forreſt*, and Mr. *Whorwood*'s at *Holton*, &c. and may be *ſewed* by letting the Water of the upper Ponds out into the lower; but by a *ſide Ditch* cut along by them, and *Sluces* out of each, may be any of them emptied, without letting the *Water* into, or giving the leaſt Diſturbance to any of the reſt: which being a Convenience that I never met with before, and perhaps unknown to many, I thought good to mention.

48. A-

48. Amongſt the *Water-works* of Pleaſure, we muſt not forget an *Engine* contrived by the Right Reverend Father in God, *John Wilkins*, late Lord Biſhop of *Cheſter*, when he was *Warden* of *Wadham College*, though long ſince taken thence; whereby, of but few Galons of *Water* forced through a narrow *Fiſſure*, he could raiſe a *Miſt* in his *Garden*, wherein a Perſon placed at a due Diſtance between the *Sun* and the *Miſt*, might ſee an exquiſite *Rainbow* in all it proper *Colours*: which Diſtance I conceive was the ſame with that aſſigned by *Des Cartes*, *viz.* where the Eye of the *Beholder* is placed in an Angle of 42 Degrees, made by the *Decuſſation* of the Line of *Viſion*, and the Rays of the *Sun*; and the *Fiſſure* ſuch another as in his *Diagram*[x]. But what kind of *Inſtrument* it was that forced the *Water*, I dare not venture to relate, the Deſcription given me of it being but lame and imperfect.

49. Nor can I paſs by unmentioned, a *Clock* that I met with at *Hanwell*, at the Houſe of the Right Worſhipful Sir *Anthony Cope*, that moves by *Water*, and ſhews the *Hours*, by the riſe of a new gilded *Sun* for every *Hour*, moving in a ſmall *Hemiſphere* of Wood; each carrying in their *Centers* the Number of ſome *Hour* depicted *black*; as ſuppoſe of *one* a clock, which aſcending half way to the *Zenith* of the *Arch*, ſhews it a quarter paſt *one*, at the *Zenith* half *Hour*; whence deſcending again half way towards the *Horizon*, three quarters paſt *one*; and at laſt abſconding under it, there preſently ariſes another gilded *Sun* above the *Horizon* at the other ſide of the *Arch*, carrying in its *Center* the Figure *two*: and ſo of the reſt. Which ingenious Device, though taken out of *Bettinus*[y], who calls it, *aquarii Automatis ingenioſiſſimi horariam operationem*: yet being ſince improved by that *ingenious Perſon*, and applyed to other Uſes, particularly of a *Pſeudo-perpetual Motion* made by the deſcent of ſeveral gilt *Bullets* upon an *indented* Declivity, ſucceſſively delivered by a Wheel much of the ſame Fabrick with the *Typanum* of the *Water-clock*, ſo that they ſeem ſtill the *ſame*: I could not but in Juſtice take notice of it.

50. There are ſome other *Water-works* at the ſame Sir *Anthony Cope*'s, in a Houſe of *Diverſion* built in a ſmall *Iſland* in one of the *Fiſh-ponds*, Eaſtward of his Houſe, where a *Ball* is toſt by a *Column* of *Water*, and artificial

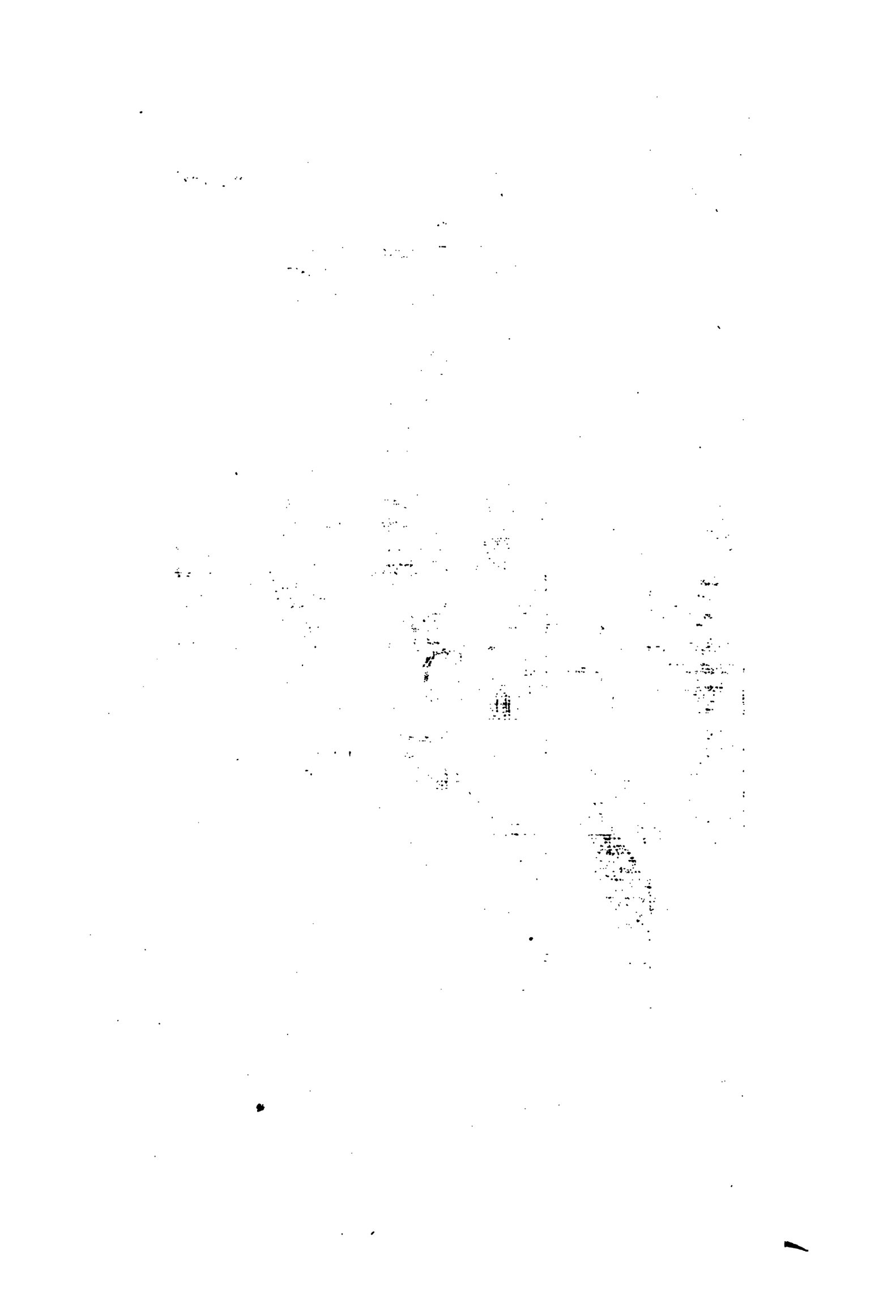
[x] Des Cartes *Meteorolog. cap.* 8. [y] Marii Bettini *Ærarii Philoſoph. Mathemat. Tom.* 2. *Exodio* 5. *& ult.*

Showers

2. 2. *The* Iſland *in the middle of it.*
3. 3. *The* Pales *round it ſtanding on a ſtone Wall.*
4. *An artificial* Rock *erected in the middle of the* Iſland *covered with living aqueous* Plants.
5. *The* Keeper *of the Water-works that turns the* Cocks.
6. *A* Canopy *of Water caſt over the* Rock, *by*
7. *an* Inſtrument *of* Braſs *for that purpoſe.*
8. *A* Column *of Water riſing about* 14 *Foot, deſigned to toſs a* Ball.
999999. *The Streams of Water from about* 30 Pipes *ſet round the* Rock, *that water the whole* Iſland, *and ſportively wet any* Perſons *within it; which moſt People ſtriving to avoid, get behind the* Man *that turns the* Cocks, *whom he wets with*
10. *a* Spout *of* Water *that he lets fly over his Head; or elſe if they endeavour to run out of the* Iſland *over the Bridge, with*
11. 12. *which are two other* Spouts, *whereof that repreſented at a* 11, *ſtrikes the* Legs, *and that at* 12 *the* Reins *of the Back.*
13. *The* Bridge *over the Water lying on two* Treſtles.
14. *The* Steps *leading into the* Grove, *and toward the* Houſe, *where you paſs by*
15. *a* Table *of black Marble.*
16. *A* Ciſtern *of Stone, with five Spouts of* Water *iſſuing out of a Ball of Braſs, in which a ſmall* Spaniel *hunts a* Duck, *both diving after one another, and having their Motion from the Water.*
17. *The way up into the* Banqueting-room *over the* Rock, *and other* Cloſets, &c.
18. *The Paſſage between the* Ciſtern *and* Building.
19. *The iron Grate that gives Light to the* Grot *within.*
20. *The Paſſage down to the* Grot.
21. *The Windows of the* Banqueting-room.
22. *The* Grove *and* Walks *behind and on each End of the* Building.

53. Being now come down into the *Grot* by the Paſſage 18, *Tab.* 11. and landing at the Bottom of the *Stairs*, *Tab.* 12. *a.* on a large *half pace* before it *bb.* The *Rock* preſents it ſelf made up of large craggy *Stones* with great *Cavities* between them, *ccc &c.* out of which flows *Water* perpetually Night and Day, daſhing againſt the *Rocks* below, and that in great plenty in the dryeſt Seaſons, though fed only with

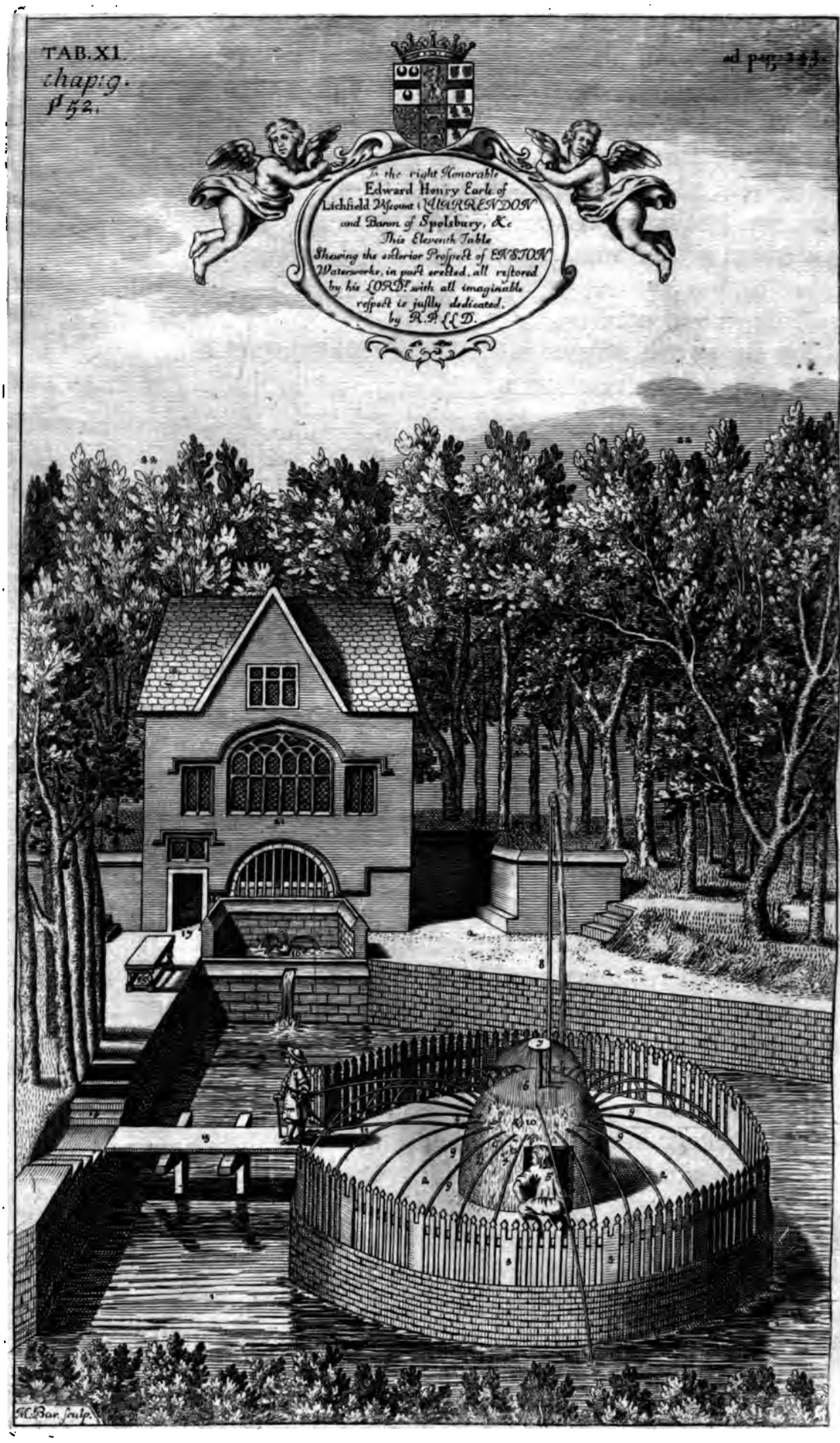
a



TAB. XI.
chap: 9.
p. 52.

ad pag. 243.

To the right Honorable
Edward Henry Earle of
Lichfield Vicount WARRENDON
and Baron of Spelsbury, &c
This Eleventh Table
Shewing the exterior Prospect of ENSTON
Waterworks, in part erected, all restored
by his LORDP. with all imaginable
respect is justly dedicated.
by R. P. LL. D.



W. Barr. sculp.

a ſingle *Spring* riſing in a piece of ground call'd *Ramſall*, between *Enſton* and *Ludſton*. The natural *Rock* is about 10 Foot high, and ſo many in Bredth; ſome few *Shelves* of Lead *dd*, and the Top-ſtones only having been added (eaſily to be diſtinguiſh'd by their *Dryneſs*) which have advanced it in all about 14 Foot high.

54. In the *half pace* juſt before the *Compartment e e e*, upon turning one of the *Cocks* at *f* riſes a *chequer Hedge* of *Water*, as they call it, *g g g g*; and upon turning *another*, the two ſide *Columns* of *Water h h*, which riſe not above the height of the natural *Rock*; and of a *third*, the middle *Column i*, which aſcending into the *turn* of the *Arch*, and returning not again, is received into hidden *Pipes* provided for that purpoſe: Into *one* whereof, terminated in a very ſmall *Ciſtern* of *Water* behind a *Stone* of the *Rock*, and having a *Mouth* and *Languet* juſt above its Surface, the *Air* being forced into it by the Approaches of the *Water*, a Noiſe is made near reſembling the *Notes* of a *Nightingale*: But when that *Pipe* is filled there is then no more ſinging, till the *Water* has paſt away by another *Pipe* in the lower part of the *Rock*, which when almoſt done, there is heard a *Noiſe* ſomewhat like the Sound of a *Drum*, performed by the ruſhing in of *Air* into the hollow of the *Pipe*, which is large, and of *Copper*, to ſupply the place of the *Water* now almoſt gone out; which done, the *Nightingale* may be made to ſing again.

55. From the turned *Roof* of the *Rock*, by help of the braſs *Inſtrument k*, and turn of a Cock in one of the *Cloſets* above, they can let down a *Canopy* of *Water l l*; from the Top alſo they can throw *arched Spouts* of *Water* croſſing one another, and daſhing againſt the Walls, oppoſite to thoſe of their riſe, as at *m n* and *o p*; and *others* that riſe out, and enter in again to the *Roof* at ſome Diſtance, never falling down at all at *q r* and *s t*. Which Falls of *Water* may be alſo delicately ſeen, turning the Back upon them as well as looking forward, by help of a Looking-glaſs placed in the Wall oppoſite to them, which could not be poſſibly repreſented in the *Cut*. And ſome of theſe *Waters* (I muſt not ſay which) being often uſed by way of *Sport* to wet the *Viſitants* of the *Grot*, that they might not avoid it by running up the *Stairs*, and ſo out into the *Grove*, by turning a Cock in another of the *Cloſets*, they can let fall Water ſo plentifully in the *Door u u*, that moſt *People* rather chuſe to ſtay where they are, than paſs through it: which is all con-

cerning the inner *Proſpect* of the Rock; what remains being only a Repreſentation of the *Arch* of Stone *w w* built over it, with two *Niches x y* one of each ſide, and the *Grate z* at the Top, through which they look down out of the *Banqueting-room* into the *Grot*. Of which no more, but that behind the Rock there is a *Cellar* for keeping *Liquors* cool, or placing *Muſick* to ſurpriſe the *Auditors*; and behind that the *Receivers* of *Water* to ſupply the *Pipes*, &c.

56. To theſe ſucceed the *Arts* relating to *Earths*, which either reſpect the *Tillage*, or *Formation* of them. How many ſorts of *Soils* I met with in *Oxford-ſhire*, *viz. Clay*, *Chalk*, and others from their different *Mixtures* called *Maum*, *Red-land*, *Sour-ground*, *Stone-braſh*, *Stony*, *Sandy* and *Gravelly*, were enumerated amongſt *Earths*, Chap. 3. It remains that we here give a particular account, by what *Arts* they are Tilled to the beſt Advantage. And firſt of *Clay*,

57. Which if kind for *Wheat*, as moſt of it is, hath its firſt *Tillage* about the beginning of *May*; or as ſoon as *Barley* Seaſon is over, and is called the *Fallow*, which they ſometimes make by a *caſting Tilth*, *i. e.* beginning at the Out-ſides of the *Lands*, and laying the *Earths* from the *Ridge* at the Top. After this, ſome ſhort time before the ſecond *Tilth*, which they call *Stirring*, which is uſually performed about the latter end of *June*, or beginning of *July*, they give this Land its *Manure*; which if *Horſe-dung* or *Sheeps-dung*, or any other from the *Home-ſtall*, or from the *Mixen* in the Field, is brought and ſpread on the *Land* juſt before this *ſecond* Plowing: But if it be *folded* (which is an excellent *Manure* for this *Land*, and ſeldom fails ſending a *Crop* accordingly if the *Land* be in *Tillage*) they do it either in *Winter* before the *Fallow*, or in *Summer* after it is *fallowed*. And theſe are the *Manures* of *Clay* Land in the greateſt part of *Oxford-ſhire*, only in and near the *Chiltern*; where beſide theſe, it is much enriched by a ſoft mellow Chalk that they dig from underneath it: when it is *ſtirred* it lies again till the time of ſowing *Wheat*, except in a moiſt dripping *Year*, when running to *Thiſtles* and other *Weeds*, they ſometimes give it a ſecond *Stirring*, before the *laſt* for *ſowing*.

58. All which *Tillages* they are very careful to give it as *dry* as may be, *ridging* it up twice or thrice for every *caſting Tilth* (*i. e.* in their *ſtirring*, and for *ſowing*, beginning at the top of the *Land* and laying the *Earth* ſtill upwards

to

TAB 12
ad pag 245
chap 9
p. 53.
To the most Illustrious Lady, the Lady
CHARLOTTE
Countess of Lichfield Viscountess Quarrendon &
Baroness of Spelsbury &c.
This 12th Table,
Shewing the interior Prospect of ENSTON Mine
works, wch ye greatest Curiosity is humbly Consecrated
by R.P. LL.D.

to the *Ridge*) by which means both *Land* and *Corn* lie dryer, warmer, and healthier, and the ſucceeding *Crop* becomes more free from *Weeds*. After it is thus prepared, they ſow it with *Wheat*, which is its proper *Grain*; and if it be a ſtrong ſtiff *Clay*, with that they call *Cone-wheat*: and the next Year after (it being accounted advantageous in all *Tillage* to change the *Grain*) with *Beans*; and then plowing in the *Bean-bruſh* at *All-Saints*, the next Year with *Barley*; and amongſt the ſeveral ſorts of that *Grain*, if the Land be rank, with that they call *Sprat-Barley*; and then the fourth Year it lies *fallow*, when they give it *Summer Tilth* again, and ſow it with *Winter-corn* as before. But at moſt places where their *Land* is caſt into three *Fields*, it lies *Fallow* in Courſe every third Year, and is ſown but *two*; the firſt with *Wheat*, if the Land be good, but if mean with *Miſcellan*, and the other with *Barley* and *Pulſe* promiſcuouſly. And at ſome *places* where it lies out of their *Hitching*, *i. e.* their Land for *Pulſe*, they ſow it but every ſecond Year, and there uſually two Crops *Wheat*, and the third *Barley*, always being careful to lay it up by *ridging* againſt *Winter*; *Clay* Lands requiring to be kept high, and to lie warm and dry, ſtill allowing for *Wheat* and *Barley* three *Plowings*, and ſometimes four, but for other *Grains* ſeldom more than *one*. When at any time they *ſow* Peaſe on this Land, the beſt Husbandmen will chuſe the *Vale-grey* as moſt proper for it; and if *Vetches*, the *Gore* or *Pebble-Vetch*: But if ſo cold a *weeping Clay* that unfit for theſe, then they improve it with *Ray-graſs*.

59. As for the *Chalk-lands* of the *Chiltern-hills*, though it require not to be laid in *Ridges* in reſpect of *Dryneſs*, yet of *Warmth* it doth: when deſigned for *Wheat*, which is but ſeldom, they give it the ſame *Tillage* with *Clay*, only laying it in *four* or *ſix* furrowed *Lands*, and *ſoiling* it with the beſt *Mould*, or *Dung* but half rotten, to keep it from *binding*, which are its moſt proper *Manures*; and ſo for *common Barley* and *winter Vetches*, with which it is much more frequently *ſown*, theſe being found the more ſuitable *Grains*. But if it be of that pooreſt ſort they call *White-Land*, nothing is ſo proper as *Ray-graſs* mixt with *Non-ſuch*, or *Melilot Trefoil*, according as preſcribed in *Chap.* 6. *ſect.* 33.

60. If the *Land* be of that ſort they call *Maumy*, conſiſting of a Mixture of *White-clay* and *Chalk*, and ſomewhat of *Sand*, which cauſes it to work ſo ſhort if any thing

thing dry, it is commonly ſown with all ſorts of *Wheat*, *Miſcellan*, *Barley*, &c. having the ſame *Tillage*, and requiring to be kept high, and to lie dry and warm as the *Clay* doth, only its moſt proper *Manure* is the *rotteneſt* Dung; and as they ſow *Beans* next after *Wheat* in *Clay* Grounds, in this they judge *Peaſe* a more agreeable *Grain*, and take care in their *Seed-time* that the Weather be fair, and ſettled; for if there happen but a ſmart Shower preſently after they have ſown, it will bind ſo faſt, that the *Seed* in great part will be utterly loſt; whereas if they have but one or two dry Nights, all ſucceeds well enough.

61. If *Red-land*, whereof there are ſome Quantities in the *North* and *Weſt* of *Oxford-ſhire*, it muſt have its *Tillage* as ſoon in the Year as poſſibly can be, before the *Clay*, where they are in Competition, becauſe it will not endure the ſcorching *Tillage* that *Clay* will do, and therefore muſt have it before the *Sun* get to near the *Crab*: if it be moiſt when *fallowed*, ſo it be not too wet, it is the better. This never requires a double *Stirring*, nor muſt be made too *fine* and *light*, for then it runs to *May-weed*, or *Mathern*, as they call it; yet the *Manure* for *Clay* does very well with it, but the mix'd *Manure* of *Horſe-dung* and *Cow-dung* together, they ſay does beſt of any: Nor is the *Sheep-fold* amiſs either *Winter* or *Summer*, which muſt all be applied before *Stirring*, and plowed in; if for *Wheat*, about the latter end of *July*, or beginning of *Auguſt*; if for *Barley*, later in the *Year*, as the Time and Seaſon gives leave. This Land, like *Clay*, bears *Wheat*, *Miſcellan*, *Barley*, and *Peaſe*, in their order, very well, and lies *Fallow* every other *Year*, where it falls out of their *Hitching*.

62. There is another ſort of Ground in this *County* which they call *Sour-land*, which muſt have its *Tilth* according to its State and Condition when they ſet about it; if it have a ſtrong *Swarth* on it, then they caſt to give it a *Fallow*, when the *Sun* is pretty well enter'd *Cancer*; and this they call a *Scalding-fallow*, which kills the Graſs-roots, and makes the *Land* fine: But if it be *light*, and as they term it, hath *little Skin on the Back*, they either leave it for cooler *Tillage*, or plow it *early* in the *Year*, as ſoon as their *Clay* is *fallowed*, and there will *ſpring* ſome *Spiring-Graſs* that will keep it from ſcorching in the *Summer*: for if they ſuffer it to be *ſcorched* when it is *light* before, all their *Art* and *Manure* will never procure a good *Crop* of it.

63. The

direct, and if in either of the two laſt *Months*, are called *Winter-fallows*, and are never ſtirred at all, but ſowed with *Barley* upon the ſecond *Earth* in the Beginning of *ſowing*, becauſe then they work moſt kindly, and will bear cold Weather better than when more finely *tilled*. Theſe *Lands* will alſo bear *Wheat* and *Miſcellan* indifferently well in a kind *Year*, but not ſo well as *Clay*, *Sour-ground*, or *Redland*; but they bear a fine round *Barley* and thin skin'd, eſpecially if they be kept in *heart*: They lie every other Year *fallow* (as other *Lands*) except where they fall among the *Peaſe* quarter, and there after *Peaſe* they are ſown with *Barley*, and lie but once in four Years. Theſe are ſown alſo many times with *Dills* or *Lentils*, and when quite worn out, or ſo poor that they will bear nothing elſe to Advantage, they are yet fit for *Ray-graſs* mixt with *Trefoil*, as preſcribed above in the Chapter of *Plants*.

66. There is a ſort of *Tillage* they ſometimes uſe on theſe *Lands* in the *Spring* time, which they call *Streak-fallowing*; the manner is, to plow *one* Furrow and leave *one*, ſo that the *Land* is but half of it plowed, each plowed Furrow lying on that which is not ſo: when it is *ſtirred* it is then clean plowed, and laid ſo ſmooth, that it will come at ſowing-time to be as plain as before. This is done when theſe *Lands* are not *ſwardy* enough to bear clean *Tillage*, nor *callow* or light enough to lie to get *Sward*, the Intent is to keep the *Sun* from ſcorching them too much: But in moſt places they think this way of *Tillage* wears their *Land* to faſt, and therefore ſeldom uſe it.

67. As for *ſtony Land*, whereof there is but little can be properly ſo called but in the *Chiltern Country*, they give it for *Wheat*, *Peaſe*, and *Barley*, much the ſame *Tillage* and *Manure* they do *Clay* in other places, adding the Advantage of *chalking* it, which they have not elſe-where for their *clay Grounds*, by which they much enrich it for ſome Years, ſo that it bears excellent *Wheat*, *Barley*, *Peaſe*; of which laſt thoſe they call *Hampſhire-kids*, if the Land be new chalkt, are accounted moſt agreeable; where by the way let it be noted, that I ſaid but for ſome Years, for when once the *Manure* by Chalk is worn out, the Land is ſcarce recoverable by any other, whence 'tis *Proverbial* here, as well as ſome other parts of *England*, that *chalkt Land* makes a rich *Father* but a poor *Son*, thereby intimating the Ruin of the Land in the end, it becoming at laſt only fit for *Ray-graſs* mixt with *Trefoil* as above.

68. Laſt-

ad pag: 140.

TAB. IX. chap: 6.

68. Laſtly, their *ſandy* and *gravelly* light ground, has alſo much the ſame Tillage for *Wheat* and *Barley*, as *Clay*, *&c.* only they require many times but *two* plowings, eſpecially if for *Wheat*, except the *Fallow* be run much to *Weeds*, and then indeed they ſometimes afford it a *Stirring*, elſe none at all. Its moſt agreeable *Grains* are, *white*, *red*, and *mixt Lammas Wheats*, and *Miſcellan*, *i. e. Wheat* and *Rye* together, and then after a Year's Fallow, *common* or *rathe-ripe Barley*: ſo that it generally lies ſtill every other Year, it being unfit for *hitching*, *i. e. Beans* and *Peaſe*, though they ſometime ſow it with *Winter Vetches*; and if ever with *Peaſe*, the ſmall *rathe-ripes* are accounted the beſt: Its moſt agreeable *Manure* is of Straw, from the *Cloſe* or *Mixen* half rotten, which keeps it open, and ſuffers it not to bind too much, where ſubject to it; but if otherwiſe, the rotteneſt *Dung* is the beſt.

69. Whereof, as upon all other *Lands* before mention'd, they lay about 12 *Loads* upon a common Field *Acre*, *i. e.* about 20 upon a Statute *Acre*; but I find the Buſineſs of manuring *Land* to have a great *Latitude*, Men doing it here many times, not according to their *Judgement*, but according to the *Quantities* they have, ſo that where the Quantities of *Manure* are but ſmall and the *Tillage* is great, the caſe is much otherwiſe, than where both *Tillage* and *Manure* are in a contrary Condition. But however the caſe ſtand, I find this a general Rule amongſt them, that they always *ſoil* that *Land*, firſt and beſt, which is to bear three *Crops*; one on the *Tillage*, another of *Beans* and *Peaſe*; and a third of *Barley*, on the *Beans* or *Peaſe* bruſh; all which depend upon the ſingle *Manure* given it when it lay *fallow* for *Wheat*: though I have known this order frequently inverted by the beſt *Husbandmen* on their richeſt *Lands*, ſowing *Barley* firſt, then *Peaſe* or *Beans*, and their *Wheat* laſt, for which they allege this very good reaſon, That *Wheat* following the *Dung-cart* on their beſt Land, is the more liable to *ſmut*.

70. And ſo much for the ordinary *Manures* of this *County*, there being two others yet behind, *viz. Chippings* of *Stone*, and *woolen Rags*, not altogether ſo common, which I have therefore thought fit to conſider apart; the *firſt* whereof I met with at *Hornton* near *Banbury*, where the *Chippings* of the *Stone* they hew at their *Quarry*, proves a very good *Manure* for their Ground thereabout, and is accordingly made uſe of, by reaſon no doubt of a *Salt* that *Stone* holds,

which being diſſolved by the *Weather*, is imbibed by the *Earth*, as hinted before in *Chap.* 4. of this *Eſſay*.

71. The 2d ſort I firſt obſerved about *Watlington*, and the two *Brightwels*, where they ſtrew them on their Land with good Succeſs; and I have heard ſince of ſeveral other *Places* where they do the ſame. To this purpoſe they purchaſe *Taylers* Shreds, which yet retaining ſomewhat of the *Salt* of the *Fulling-earth* with which they were dreſt, do well enough; but I judge them not ſo good as other old *Rags* firſt worn by *Men* and *Women*, which muſt needs beſide be very well ſated with *urinous Salts*, contracted from the *Sweat* and continual *Perſpiration* attending their *Bodies*. And in this Opinion I am confirmed by *Sanct. Sanctorius*, who is poſitive, that *our inſenſible Evacuations, tranſcend all our ſenſible ones put together*[2], to that Exceſs, *that of eight pounds weight of Meat and Drink be taken by a Man in one Day, his inſenſible Tranſpirations uſe to amount to five*[3]. Now if ſo, our *Cloaths* muſt needs be ſo filled with a well rectified *Salt*, left behind in the *Percolation* of the *Steams* of our *Bodies*, that there can be nothing more rational, if well conſidered, than that they ſhould be a very fit *Manure* for Land, when unfit for other Uſes.

72. As to the *Quantities* of *Corn* ſown on the *Statute Acre*, they differ much in proportion to the Richneſs or Meanneſs of the *Land*; about two *Buſhels* of *Wheat* and *Vetches*, two *Buſhels* and ½ of *Barley*, *Oats*, and *Peaſe*, and a Quarter of *Beans* ſufficing the poorer; whereas the richer *Land* will take up three *Buſhels* or more of *Wheat* or *Vetches*, three *Buſhels* and ½ or upwards of *Barley*, *Oats*, *Peaſe*, and ſometimes ſix *Buſhels* of *Beans*: Yet I have known ſome able *Husbandmen* afford more Seed to their poor than rich Land, giving this reaſon, That the Seed in the rich does *tillar*, *i. e.* ſprout into ſeveral *Blades* and ſpread on the ground, whereas on the poor Land its Sprouts come all ſingle, which therefore, ſay they, requires the more *Seed*.

73. In the Choice of their *Seed* they have a double Reſpect, firſt to the *Grain* it ſelf, and ſecondly to the *Land* it grew on. As to the *firſt*, they take care that it be clear of all manner of *Seeds*; that it be handſom round *Corn*, of an equal Size, which ſome of them call *Even-ſhooting Corn*, or *well breaſted*; ſuch *Corn* being for the moſt part full of *Kernel*, and the likelieſt to give ſtrong *Roots*. And in reſpect of the *Soil*, they conſtantly chooſe *Corn* that grew on

[2] Sanctorii *Medicinæ Staticæ*, *lib.* 1. *ſect.* 1. *Aphoriſm.* 4. [3] *Ibid. Aphoriſm.* 6.

Land

Land of a quite different Nature from that it is to be *ſown* on; but in general, they deſire it from *Land* that is well in *heart*, and rich in its kind. If they are to ſow *Wheat* upon *Tillage*, they chooſe *Wheat* ſown before upon *Bean Stubs*, and when they ſow upon *Peaſe* or *Bean Stubs*, *Wheat* ſown before on *Tillage*; for *Clay* ground they have their *Seed* from *Red-land* or *Chalk*, *& vice verſa*; for the other *Soils*, that from *Clay* is eſteemed the beſt, though that from *Red-land* is little inferior; for *Barley* they count that beſt which comes of new broken *Land*; and for the reſt none ſo good as thoſe that come from the richeſt *Soils*.

74. Before they ſow, if the place be ſubject to the Annoyances of *Smutting*, *Mildews*, *Birds*, *&c.* they take care to prevent them either in the preparing or choice of their *Grain*. Againſt *Smutting* they both *brine* and *lime* their *Corn*, ſome making their *Brine* of *Urine* and *Salt*; or elſe ſow *red-ſtraw'd Wheat*, which is the leaſt ſubject to it of any. To prevent *Mildews*, ſome ſow pretty early, judging *Corn* moſt ſubject to that Annoyance when ſown late; or elſe make choice of the *long bearded Cone*, that being the leaſt ſubject of any *Wheat* yet known to the Inconveniencies of *Mildews*, and of being eaten by *Birds*, and therefore alſo fitteſt to be ſown in ſmall *Incloſures*, as noted before in the ſixth Chapter.

75. In Sowing they have ſeveral Methods, *viz.* the *ſingle Caſt*, the *double Caſt*; and as they call it about *Burford*, the *Hackney Bridle*, *or riding Caſt*. The *ſingle Caſt* ſows a Land at one bout; the *double Caſt* is twice in a place, at two different bouts, *viz.* one from *Furrow* to *Ridge*, and afterwards from *Ridge* to *Furrow*. The *Hackney Bridle* is two Caſts on a Land at one time, and but once *about*, though I find theſe two latter ſometimes confounded, their *Names* being interchangeably applyed in different parts of the *County*. The *firſt* way is ſeldom uſed amongſt them, only by the ancienteſt *Seeds-men*; the *ſecond* is their uſual and moſt certain way; the *laſt*, though the neweſt Faſhion, is but ſeldom uſed yet, though ſome have tryed it with good Succeſs, and perhaps may hereafter bring it more in Practice, it having more Speed than the *double Caſt* to recommend it to uſe. They have alſo a way of ſowing in the *Chiltern Country*, which is called ſowing *Hentings*, which is done before the *Plow*, the *Corn* being caſt in a ſtraight Line juſt where the *Plow* muſt come, and is preſently *plowed* in. By this way of *ſowing* they think they ſave much *Seed* and other Charge, a dexte-

rous *Boy* being as capable of ſowing this way out of his *Hat*, as the moſt judicious *Seeds-man*. But of this way more hereafter, when I come into *Buckingham-ſhire*.

76. Thus having run through the *Tillage*, *Manures*, *Quantities* and Choice of *Seed*, and the ſeveral ways of ſowing the *Soils* of this *County*, I proceed to the *Inſtruments* uſed in their *Tillage*: Amongſt which, the *Plow* being the beſt, becauſe the moſt uſeful *Engine* in the World, deſerves the firſt place; of which there are two ſorts uſed in *Oxford-ſhire*, the *Foot*, and *Wheel-plow*; whereof the firſt is uſed in deep and Clay Lands, being accordingly fitted with a *broad-fin* Share, and the *Horſes* going always in a *String* and keeping the *Furrow*, to avoid poching the Land; and the *ſecond* in the lighter and ſtony Land, the *Horſes* either going in a *String*, or two a breaſt, according as thought moſt ſuitable to the *Tillage* in hand[b]: This *Plow* when uſed in ſtony Land, is armed with a *round-pointed* Share, having alſo near the *Chep* of the *Plow* a ſmall *Fin* to cut the Roots of the Graſs, for in this Land the *broad Fin* jumps out of the ground. The *Foot-plow* does beſt at the *Henting*, *i. e.* ending of a Land, it going cloſe up to a *Hedge*, and not being ſubject to over-throw; whereas the *Wheel-plow*, if Care and Diſcretion do not meet in the *holder*, is apt to overthrow there, the Land being ridged; but goes much more lightſome and eaſy for the *Horſes* than the *Foot-plow* doth, which is the Sum of the Conveniencies and Inconveniencies of both.

77. After *Plowing* and *Sowing*, they cover their *Corn* with *Harrows*, whereof ſome have 4, 5, or 6 *Bulls*, or *Spars* apiece, each of them armed with five *Tines*, and of a ſquare Form, as at moſt other *places*. But at *Whitfield*, near Sir *Thomas Tipping*'s, I ſaw a great weighty *triangular Harrow*, whoſe *Tines* ſtood not in Rows after the manner of *others*, its uſe being in ground much ſubject to *Quitch-graſs*, whoſe Roots it ſeems continually paſſing between the *Tines* of other *Harrows*, are not ſo eaſily dragged forth by them, as this, whoſe *Tines* ſtand not in *Rows*, and is drawn with one of the *Angles* fore-moſt, after the manner of a *Wedge*: Yet I could not find it anſwer'd Expectation ſo well as to obtain in other places, moſt thinking the *great ſquare Bull Harrow*, drawn by the ſecond *Bull* on the *near ſide* of the *Harrow*, to take the Graſs much better than that.

[b] *On light Land ſome count the treading of double Cattle advantageous to it.*

78. But

78. But the worſt Ground to *harrow* of all others is new *broken Land*, the parts of its Furrows being commonly ſo faſt knit together by the Roots of the Graſs, that though great Charge and Trouble be afforded in the *harrowing*, yet after all it will not ſo *diſperſe* the *Corn*, but that it will come up as it fell, thick and in Ranks between the *Furrows*, and ſcarce any where elſe. To prevent theſe Inconveniencies, the Ingenious Mr. *Sacheverel*, late of *Bolſcot*, deceaſed, contrived a way of *Howing* the *Earth* from the *Turf* as ſoon as a little dryed, thereby firſt laying his Ground even and then ſowing it; by which means his *Seed* not only fell and came up equally diſperſt in all parts alike, but he found a Quantity conſiderably leſs, did this way ſerve the Turn. Which *Experiment* he often made with good Approbation, the Charge of *Howing* not exceeding that of *Harrowing*, which without it muſt be great, whereas after it, one *croſs Tine* covers the *Corn* well enough.

79. After *Harrowing*, if it hath been ſo dry a time, that the Ground has riſen in *Clods* that cannot be broken with *Harrows*, they commonly do it with a *Beetle* or *big Stick*: But a much quicker way is that I met with about *Biſſeter* by a weighty *Roll*, not cut round, but *Octangular*, the Edges whereof meeting with the *Clods*, would break them effectually, and with great Expedition. I was ſhew'd alſo at *Bolſcot* another uncommon *Roll* invented by the ſame Mr. *Sacheverel* above-mentioned, cut neither *Smooth* nor to *Angles*, but noched deep and pretty broad, after the manner of a *Teſſella* or *Lattice*, ſo that the Protuberant parts remained almoſt as big as the Foot of a *Horſe*, by which being large and weighty, he could ſo firmly preſs his *light Land* ſubject to *Quitch-graſs* and other *Weeds*, and ſo ſettle the Roots of the *Corn*, that it would come up even and well; whereas if it had been left hollow it would certainly have been choak'd, and came to little; He aſſerted, that it alſo excelled a ſmooth *Roll*, eſpecially if the Seaſon proved dry and windy, in that, when a Field is *rolled* ſmooth, the *Wind* is apt to blow the *Earth* from the *Corn*, whereas by this the Ground is laid ſo uneven and full of Holes, like *Chequer-work*, that what the Wind blows from the *Ridges*, ſtill falls into the *Hollows* between them, and on the contrary gives the *Corn* the better Root.

80. I have heard of another ſort of *Roll*, of a large *Diameter*, and weighty, ſet the whole Length with edged Plates of *Steel*, prominent from the Body of the *Roll* about an Inch and half; thus contrived for the quicker cutting of *Turf*, which drawn firſt one way, and croſs again at *right Angles*, cuts the *Turf* into Squares, in Bigneſs proportionable to the Diſtance of the edged *Plates* on the *Roll*, requiring no farther Trouble afterward, then to be pared off the Ground with a *Turfing-ſpade*, which ſeems to promiſe well for the cutting out of *Trenches*, *Drains*, &c. But this I have not ſeen, nor has it that I know of, been yet experimented by the Ingenious *Inventor*: However, I thought fit to offer it to the Conſideration of *Improvers*, and the rather becauſe it affords me a ſmooth Tranſition from the Conſideration of the *Arable*, to the *Meddow* and *Paſture Lands*.

81. For the *Meddow-grounds* of this *County*, as they are numerous, ſo they are *Fertile* beyond all *Preference*, for they need no other *Compoſt* to be laid on them, than what the *Floods* ſpontaneouſly give them, and therefore the *Reader* muſt not expect any Methods or Rules concerning that Affair here: Nor concerning the *Remedies* of Annoyances, ſuch as *Sour-graſs*, *Moſſes*, *Ruſhes*, *Sedges*, &c. for I find none of our *Meddows* much Troubled with them. As for their *Up-lands*, when they prepare them for *Graſs*, they make them as rich as they can with their moſt ſuitable *Soils*, and lay them alſo dry to keep them from *Ruſhes* and *Sedges*; if any thing *Boggy*, they uſually *trench* them; but that proves not ſufficient, for the *Trenches* of *Boggy-grounds* will ſwell, and fill up themſelves.

82. To prevent which Inconveniency, I know an Ingenious *Husbandman*, that having dug his *Trenches* about a Yard deep and two Foot over, firſt laid at the Bottom green *Black-thorn* Buſhes, and on them a *Stratum* of large round Stones, or at leaſt ſuch as would not lie cloſe; and over them again, another *Stratum* of *Black-thorn*, and upon them *Straw*, to keep the Dirt from falling in between, and filling them up: by which means he kept his *Trench* open, and procured ſo conſtant and durable a *Drain*, that the *Land* is ſince ſunk a Foot or 18 Inches, and become firm enough to ſupport *Carriages*.

83. As for the *Graſſes* ſown in this *County*, I have little more to add concerning them, but what was ſaid before in the Chapter of *Plants*, only that it has been found moſt

agree-

agreeable that *Sanct-foin*, *Ray-graſs*, *&c.* be not ſown preſently after the *Barley*, *Oates*, or what other *Grain* it be ſowed with, but rather after the *Corn* is come pretty high, ſo that it may ſhelter the *Seed* from the Heat of the *Sun*, which, as is apprehended at leaſt, is ſometimes prejudicial. And that in the *Chiltern Country*, after they have eaten off their *Ray-graſs* or *Sanct-foin*, they find it advantagious to *fold* it with *Sheep*, as other *Corn-lands*: which I thought good to note, it being, as I am informed, but lately practiſed.

84. Amongſt *Arts* that concern *Formation* of *Earths*, I ſhall not mention the making of *Pots* at *Marſh-Balden*, and *Nuneham-Courtney*; nor of *Tobacco-pipes* of the *White-Earth* of *Shotover*, ſince thoſe places are now deſerted. Nor indeed was there, as I ever heard of, any thing extraordinary performed during the working thoſe *Earths*, nor is there now of a very good *Tobacco-pipe Clay* found in the Pariſh of *Horſpath*, ſince the firſt Printing of the third Chapter of this *History*. Let it ſuffice for things of this *Nature*, that the Ingenious *John Dwight*, formerly M.A. of *Chriſt-Church College Oxon*, hath diſcovered the *Myſtery* of the Stone or *Cologne* Wares (ſuch as *D'Alva Bottles*, *Jugs*, *Noggins*) heretofore made only in *Germany*, and by the *Dutch* brought over into *England* in great Quantities, and hath ſet up a *Manufacture* of the ſame, which (by *Methods* and *Contrivances* of his own, altogether unlike thoſe uſed by the *Germans*) in three or four Years time he hath brought it to a greater Perfection than it has attained where it hath been uſed for many *Ages*, inſomuch that the *Company* of *Glaſs-Sellers*, *London*, who are the *Dealers* for that *Commodity*, have contracted with the *Inventor* to buy only of his *Engliſh Manufacture*, and refuſe the *Foreign*.

85. He hath diſcovered alſo the *Myſtery* of the *Heſſian Wares*, and makes Veſſels for reteining the penetrating *Salts* and *Spirits* of the *Chymiſts*, more ſerviceable than were ever made in *England*, or imported from *Germany* it ſelf.

86. And hath found out *Ways* to make an *Earth* white and tranſparent as *Porcellane*, and not diſtinguiſhable from it by the *Eye*, or by *Experiments* that have been purpoſely made to try wherein they diſagree. To this *Earth* he hath added the *Colours* that are uſual in the coloured *China-Ware*, and divers others not ſeen before. The Skill that hath been wanting to ſet up a *Manufacture* of this tranſparent *Earthen*

Ware

Ware in *England*, like that of *China*, is the *Glazing* of the white *Earth*, which hath much puzzel'd the *Projector*, but now that Difficulty alſo is in great meaſure overcome.

87. He hath alſo cauſed to be modelled *Statues* or *Figures* of the ſaid tranſparent *Earth* (a thing not done elſewhere, for *China* affords us only imperfect *Mouldings*) which he hath diverſified with great Variety of *Colours*, making them of the *Colours* of *Iron*, *Copper*, *Braſs*, and *party-colour'd*, as ſome *Achat-ſtones*. The Conſiderations that induced him to this Attempt, were the *Duration* of this hard burnt *Earth* much above *Braſs*, or *Marble*, againſt all *Air* and *Weather*; and the Softneſs of the Matter to be *modelled*, which makes it capable of more curious Work, than *Stones* that are wrought with *Chiſels*, or *Metals* that are caſt. In ſhort, he has ſo far advanced the *Art Plaſtick*, that 'tis dubious whether any Man ſince *Prometheus* have excelled *him*, not excepting the famous *Damophilus*, and *Gorgaſus* of *Pliny* [c].

88. And theſe *Arts* he employs about Materials of *Engliſh* Growth, and not much applyed to other Uſes; for inſtance, he makes the ſtone *Bottles* of a *Clay* in Appearance like to *Tobacco-pipe Clay*, which will not make *Tobacco-pipes*, though the *Tobacco-pipe Clay* will make *Bottles*; ſo that, that which hath lain buried and uſeleſs to the *Owners*, may become beneficial to them by reaſon of this *Manufacture*, and many working Hands get good Livelihoods; not to ſpeak of the very conſiderable *Sums* of *Engliſh Coyn* annually kept at home by it.

89. About *Nettle-bed* they make a ſort of *brick* ſo very ſtrong, that whereas at moſt other places they are unloaded by hand, I have ſeen theſe ſhot out of the *Cart* after the manner of *Stones* to mend the *High-ways*, and yet none of them broken; but this I ſuppoſe muſt rather be aſcribed to the Nature of the *Clay*, than to the *Skill* of the *Artificer* in making or burning them, and ſhould therefore have been mention'd in the *Chapter* of *Earths*.

90. At *Caverſham*, near the Right Worſhipful Sir *Anthony Craven*'s (and at ſome other places) they make a ſort of *Brick* 22 Inches long, and above ſix Inches broad, which ſome call *Lath-bricks*, by reaſon they are put in the place of the *Laths* or *Spars* (ſupported by *Pillars*) in *Oaſts* for drying *Mault*, which is the only Uſe of them, and in truth I think a very good one too; for beſide that they are no

[c] *Nat. Hiſt. lib.* 35. *cap.* 12.

way

liable to *Fire*, as the *wooden Laths* are, they hold the *Heat* ſo much better, that being once *heated*, a ſmall Matter of *Fire* will keep them ſo, which are valuable Advantages in the *Profeſſion* of *Maulting*.

91. And which brings me to the *Arts* relating to *Stone*, they have lately alſo about *Burford*, made their *Mault-kills* of *Stone*; the firſt of them being contrived after an Accident by *Fire*, by *Valentine Strong*, an Ingenious Maſon of *Teynton*, much after the manner of thoſe of *Brick*, which for the Benefit of other *Counties* where they are not known, I have cauſed to be delineated ſo far forth at leaſt, as may be Direction enough to an Ingenious *Work-man*, in *Tab.* 13. *Fig.* 1, 2. whereof the firſt *Figure* ſhews the *Front* of ſuch a *Kill*, and the Letters

a. *The* Kill *Hole.*
b. *The* Pillars *that ſupport the principal* Joiſts.
c. *The ſloping away of the inſide of the* Oaſt.
d. *The Ends of the* Joiſts.
e. *The Spaces between the* Joiſts *for the* Laths.

And the ſecond *Figure*, the Square above immediately ſupporting the *Oaſt-hair* and the *Mault*, wherein the Letters

f f. *ſhew the* Flame-ſtone.
g g. *The* Pillars *on which the principal* Joiſts *lie.*
h h. *The principal* Joiſts.
i i. *The ſhorter* Joiſts.
k k. *The* Laths *between the* Joiſts.
l l. *The ſpaces between the* Laths.

Which firſt *Kill* of *Valentine Strong*, built after this manner in *Stone*, ſucceeded ſo well, that it hath ſince obtained in many other *places*; nor do I wonder at it, for beſide the great Security from *Fire*, to which the old *Kills* were very ſubject, theſe alſo dry the *Mault* with much leſs *Fuel*, and in a ſhorter time, than the old *ones* would do; inſomuch that I was told by one Mr. *Trindar*, an ingenious *Gentleman* of *Weſt-well*, who ſhewed me a fine one of his own at *Holwell*, that whereas he could formerly dry with the ordinary *Kill* but *two Quarters* in a Day, he can now dry *ſix*, and with as little *Fuel*. Now if *Mault-kills* or *Oaſts* made with ordinary *Stone* prove ſo advantageous, what would one of them do, if the *Joiſts* and *Laths* at leaſt were made

of the *Corniſh Warming-ſtone*, that will hold *Heat* well eight or ten Hours? or of *Spaniſh Ruggiola*'s, which are broad *Plates* like *Tiles*, cut out of a Mountain of *red Salt* near *Cardona*, which being well *heated* on both ſides, will keep warm 24 Hours[d]?

92. To which may be added the *Invention* of making *Glaſſes* of *Stones*, and ſome other *Materials*, at *Henly* upon *Thames*, lately brought into *England* by *Seignior de Coſta* a *Monferratees*, and carried on by one Mr. *Ravenſcroft*, who has a Patent for the ſole making *them*; and lately by one Mr. *Biſhop*. The *Materials* they uſed formerly were the *blackeſt Flints* calcined, and a white *Chriſtalline* Sand, adding to each Pound of *theſe*, as it was found by Solution of their whole Mixture, by the Ingenious Dr. *Ludwell* formerly Fellow of *Wadham College*, about two *Ounces* of *Niter*, *Tartar*, and *Borax*.

93. But the *Glaſſes* made of *theſe* being ſubject to that unpardonable Fault called *Crizelling*, cauſed by the two great Quantities of the *Salts* in the *Mixture*, which either by the adventitious *Niter* of the *Air* from without, or warm *Liquors* put in them, would be either *increaſed* or *diſſolved*; and thereby induce a *Scabrities* or dull Roughneſs, irrecoverably clouding the Tranſparency of the *Glaſs*; they have choſen rather ſince to make their *Glaſſes* of a great ſort of white *Pebbles*, which as I am informed they have from the River *Po* in *Italy*; to which adding the aforementioned *Salts*, but abating in the *Proportions*, they now make a ſort of *Pebble-glaſs*, which are hard, durable, and whiter than any from *Venice*, and will not *crizel*, but endure the ſevereſt Tryals whatever, to be known from the *former* by a Seal ſet purpoſely on them.

94. And yet I gueſs that the Difference, in reſpect of *Crizelling*, between the preſent *Glaſs* and the former, lies not ſo much in the *Calx*, the *Pebbles* being *Pyrites* (none but ſuch I preſume being fit for *Vitrification*) as well as the *Flints*; but rather wholly in the *Abatement* of the *Salts*, for there are ſome of the *Flint-glaſſes* ſtrictly ſo called (whereof I have one by me) that has endured all Tryals as well as theſe *laſt*. But if it be found otherwiſe, that *white Pebbles* are really fitter for their turns than *black Flints*, I think they have little need to fetch them from *Italy*, there being enough in *England* of the ſame kind, not only to ſupply *this*, but perhaps *Forreign Nations*. Which is all con-

[d] *See Mr.* Willughby's *Voyage through* Spain, *p.* 471.

cerning

cerning *Arts* relating to *Stone* and *Glaſs*; except it be alſo worth notice, that Venerable *Bede* of this *Univerſity*, firſt brought Building with *Stone*, and *Glaſs-windows* into *England* [e].

95. Whence according to my propoſed *Method*, I proceed to the *Arts* relating to *Plants*; amongſt which, the firſt that preſent *themſelves*, are thoſe that concern the *Herbaceous* kind. Of this ſort we may reckon that ingenious *Experiment* made in *June*, 1669. by my worthy Friend *John Willis* M. A. and formerly Fellow of *Trin. Coll. Oxon.* in order to find in what Meaſure *Herbs* might *perſpire*, wherein he made uſe of the following *Method*. He took two glaſs *Vials* with narrow Necks, each holding 1 *Pound* 8 *Ounces*, and 2 *Drachms* of Water, *Avoir de pois* Weight: into one of theſe *Glaſſes* filled with *Water*, he put a Sprig of flouriſhing *Mint* (which before had grown in the *Water*) weighing one *Ounce*; the other *Glaſs* he alſo fill'd with *Water*, and expoſed them both in a *Window* to the *Sun*. After ten Days time, he found in the Bottle where the *Mint* was, only five *Ounces* and four *Drachms* of *Water* remaining, and no more, ſo that there was one *Pound* two *Ounces* and ſix *Drachms* ſpent, the *Mint* weighing ſcarce two *Drachms* more than at firſt.

96. From the other *Glaſs*, where *Water* was put of the ſame *Weight*, and no *Mint*, he found the *Sun* had exhaled near one *Ounce* of *Water*, and therefore concluded it drew but ſo much out of the firſt *Glaſs*, at leaſt not more: So that allowing one *Ounce* for what the *Sun* had exhaled, there was in thoſe ten Days ſpent by the *Mint*, one *Pound* one *Ounce* ſix *Drachms* of *Water*; and the *Mint* being increaſed in Weight only two *Drachms*, 'twas plain the *Mint* had purely expired in thoſe ten Days, one *Pound*, one *Ounce*, and four *Drachms*, that is, each Day above an *Ounce* and *half*, which is more than the Weight of the whole *Mint*. Whence he concluded, that what *Malpighius* ſo wonders at in his Book *De Bombyce, viz. That thoſe* Animals *will ſometimes eat in one Day, more than the Weight of their Bodies*, is out-done by every *Sprig* of *Mint*, and moſt other *Herbs* in the *Field*, which every *Summer's* Day attract more Nouriſhment than their own Weight amounts too.

97. Which the ſame Ingenious *Perſon* at leaſt queſtions not (and therefore wiſhes Tryals may be made) of the *Ti-*

[e] *Vid. Comment. in Carmen Phaleucium* Johan. Seldeni, before *Hopton's* Concordance of Years.

thymali, *Eſulæ*, and eſpecially of *Pinguicula* and *Ros Solis*, which laſt ſucks up Moiſture faſter than the *Sun* can exhale it, and is bedewed all over at *Noon-day*, notwithſtanding its Power: Nor doubts *he* but that *Wormwood*, and all other *Plants* that are very hot, and of ſtrong Smells, expire as much, if not more than *Mint*.

98. There are alſo ſeveral *Arts*, uſed about the *Corn* in this *County*, whileſt in the *Blade*, and *Straw*, that belong to this Place, ſuch as eating it off with *Sheep*, if too *Rank*, to make it grow ſtrong and prevent Lodging: whileſt the *Corn* is young they alſo weed it, cutting the *Thiſtles* with a Hook; but *Rattles* they hand-weed as ſoon as in *Flower*, and ſo they do *Cockles* when they intend the *Corn* for *Seed*. If the *Crows* toward *Harveſt* are any thing Miſchievous, as they many times are, deſtroying the *Corn* in the outer Limits of the *Fields*, they dig a *Hole* narrow at the Bottom, and broad at the Top, in the *green Swarth* near the *Corn*, wherein they put *Duſt*, and *Cinders* from the *Smith*'s Forge, mixt with a little *Gun-powder*, and in and about the *Holes* ſtick *Feathers* (*Crow-feathers* if they can get them) which they find about *Burford* to have good Succeſs.

99. They cut their *Wheat* here rather a little before, than let it ſtand till it be over-ripe; for if it be cut but a little too ſoon, the *Shock* will ripen it, and the *Corn* will be beautiful, whereas if it ſtand too long, much will ſhatter out of the Head in *Reaping*, eſpecially if the *Wind* blow hard, and that the beſt *Corn* too; the worſt only remaining, which will be Pale in the Hand, an unpardonable Fault where the *Baker* is the *Chapman*. In reaping *Wheat* and *Rye* they uſe not the *Sicle*, but a ſmooth edged *Hook*, laying their *Corn* in ſmall Hand-fulls all over the *Field*; I ſuppoſe that it may the ſooner dry, in caſe Wet come before they *bind* it, which they do in very ſmall *Sheaves*, and very looſe in Compariſon of ſome other *Counties*: They *ſhock* it Rafter-wiſe, ten *Sheaves* in a *Shock*, which if ſet wide in the But-end, will be very copped and ſharp at the Top, and will bear out Rain beyond Hope, or almoſt Credit.

100. They count their *Barley* ripe (as they do their *Wheat*) when it hangs the Head and the *Straw* has loſt its *Verdure*, which they mow with a *Sithe* without a *Cradle*, never binding but raking it together, and cocking it with a *Fork*, which is uſually a *Trident*, whoſe Teeth ſtand not in a Row, but

but meet *Pyramidally* in a *Center* at the Staff: they let it lie in the *Swathe* a Day or two, which both ripens the *Corn* and withers the *Weeds*. *Oats*, and all *mixed Corns* called *Horſe-meat*, are Harveſted ſometimes with two reaping *Hooks*, whereof the manner is thus: The *Work-man* taking a *Hook* in each Hand, cuts them with *that* in his right Hand, and rolls them up the while with *that* in his left, which they call bagging of *Peaſe*: Others they cut with a reaping *Hook* ſet in a *Staff* about a Yard long, and then they cut and turn the *Peaſe* before them with both Hands till they have a *Wad*, which they lay by, and begin again; and this they call cutting with the *Staff-hook*: But the *Sithe* they ſay is much the ſpeedieſt way, which if uſed with care, cuts them as well and clean, as either of the other.

101. After the *Sithe* they *wad* both *Beans* and *Peaſe*, and ſo turn them till they are throughly withered and dry, and then *Cock* and fit them for *Carriage*, only with this Difference, that *Beans* while they are *cocked* and *carryed*, have the looſe *Stalks* pickt up by *Hand*, the Rake being apt to beat the *Beans* out of the *Pods*, as they are drawn up againſt the Leg. All ſorts of *Cocks* are beſt made of a middleing *Size*, and well top'd; the Advantages are, that theſe are apprehended at leaſt to take leſs Wet with the ſame *Rain* than greater, and will dry again without breaking; whereas the great *Cocks*, after *Rain*, muſt be pulled to pieces, which cannot be done without great Loſs, for in the opening and turning much *Corn* will be beaten out, and that certainly the beſt too.

102. If their *Corn* be brought home a little *moiſter*, or *greener* than ordinary, or the *Weeds* be not let lie to be throughly ſhrunk or wither'd, that they ſuſpect it may *heat* in the *Barn* more than ordinary (for it is uſual for *Corn* and *Fodder* to *heat* a little) then they draw a *Cubb* or *Beer-lip* (which others call the *Seed-cord*) up the middle of the *Mow* or *Stack*, and through the *Hole* that this leaves, the *Heat* will aſcend and ſo prevent *Mow-burning*; Or if it *heat* in the *Barn* beyond Expectation, and be like to do amiſs, then they pull a *Hole* in the middle from the top to the bottom, which will alſo help it much. They draw an old *Axel-tree* of a *Cart* up a *Hay-rick* to the ſame Purpoſe, if they think their *Hay* of the *greeneſt*, or over *moiſt* when *ſtacked*.

103. But the beſt Contrivance I ever yet ſaw to prevent the *fireing* of *Ricks* of *Hay*, or *Sainct-foin*, I met with at *Tuſmore*, at the Worſhipful *Richard Fermor*'s Eſq; where they

they let in *ſquare Pipes* made of *Boards* of a Foot *Diagonal*, to the middle of their *Stacks*, to give them *Air* perpetually; the number of *Pipes* bearing Proportion to the Bigneſs of the *Ricks*, which no Queſtion may alſo be as rationally applyed to *Stacks* of *Corn*, whenever thought ſubject to the ſame Danger.

104. To preſerve their *Ricks* of *Corn*, liable to *Rats* and *Mice*, they commonly place them in this *Country*, on *Standers* and *Caps* of *Stone*; the *Standers* being four *Obelisks* about two Foot high, and the *Caps* as many *Hemiſpherical Stones* placed upon them, with the flat Sides downwards, on which having laid four ſtrong Pieces of *Timber*, and other *Joiſts* to bear up the *Corn*, they place their *Ricks*, which then are not annoyed by *Mice* or *Rats* (at leaſt not ſo much) as *Stacks* on the Ground, by reaſon the *Hemiſpherical* Stones being *Planums* at the Bottom, though they may poſſibly aſcend the *Standers* well enough, yet can ſcarce get up the *Caps*, whoſe broad Bottoms hang ſo over them *in plano Horizontis*, that they muſt needs fall in the Attempt.

105. The *Cart* they moſt uſe to bring home their *Corn*, is the two-wheeled *long Cart*, having *Shambles* over the *Shafts* or *Thills*, a *Cart-Ladder* at the Breech, and *Hoops* over the *Wheels*, on which they will lay great and very broad *Loads*, though it go not ſo ſecure and ſteady as a *Waggon*, which notwithſtanding that Advantage is of but little uſe here, only amongſt *Carriers*, &c. They uſe alſo a ſort of *Cart* they call a *Whip-lade*, or *Whip-cart*, whoſe hinder part is made up of *Boards* after the manner of a *Dung-cart*, having alſo a Head of *Boards*, and *Shambles* over the *Thills*; which *head* being made ſo as to be taken out or left in, the *Cart* may be indifferently uſed to carry *Dung* or other *Matters*; *Dung*, when the *head* is in, and *Corn*, &c. when taken out.

106. About *Banbury* moſt of their *Carts* have *Axel-trees* of *Iron*, made *ſquare* at one end and *round* at the other; at the *ſquare* end they are made faſt into one of the *Wheels*, and move round together with it; and at the other end they move within the *Box* of the *Wheel*, and the *Wheel* round them too: With this ſort of *Axel* ſome are Opinion that the *Cart* moves much lighter for the *Cattle*, than with a wooden *one*, to whom I ſhould much rather aſſent, did the *round* end of the *Axel* move in a *Box* of *Braſs*, and were the places where the *Cart* reſts on it, lined with *braſs Plates*,

Plates, for then a ſmall matter of *Oil* (as 'tis in the *oiling* of *Bells*) would cauſe the heavieſt Weight to be moved with great Eaſe: however as they are, much leſs *Greaſe* ſerves the turn; and one of them made of good tough *Iron*, will laſt a Man's *Age*, and ſometimes *two*, whereas the wooden *ones* are frequently at Reparations: nor does there any Inconveniency attend *them* that I could hear of, but that the *Wheels* have not ſo much Room to play to and fro on *theſe*, as on the *others* of *Wood*, and therefore not ſo good where either the *Ways* or *Cart-routs* are deep.

107. Their way in this *Country* to bring the *Corn* from the *Straw*, is for the moſt part by the *Flail*, only in ſome *Places* when their *Wheat* is very *Smutty*, they have a way of *whipping* it firſt, and then *threſhing* it afterwards: their manner of *whipping* is ſtriking the *Corn* by a Handful at a time, againſt a *Door* ſet on its Edge; and when a *Sheaf* is thus *whipt*, they bind it up again for the *Flail*; which way indeed is troubleſome and tedious, but by this means the *Smut-bags* or *Balls* are preſerved unbroken, and by the Strength of a good Wind, and care in the *Raying*, moſt part of them may be gotten forth, and the *Wheat* left clear.

108. But before they threſh *Rye*, they ſometimes take care to preſerve ſome of the *Straw* whole or unbroken, to ſerve for *Straw-works*: which I ſhould not have thought worth mentioning, but that we had an *Artiſt* here in *Oxford*, the Ingenious *Robert Wiſeman*, excellent for ſuch Matters, beyond all Compariſon; and yet he modeſtly owns, that *he* ſaw Work in *Italy* that gave him a hint for his *Invention*, but knows not whether that *Artiſt* (but believes rather the contrary) uſes the ſame Procedure that he does or no: However, if it muſt not be allowed his *Invention*, yet becauſe *he* has improved it to ſo great an *Excellency*, I cannot but let the *World* know, that though he *profeſſes* nothing extraordinary in the *Dying* of his *Colours*, yet by certain *Method*, of firſt ſcraping the *Straw*, and cutting it into ſmall ſquare *Pieces*, none longer than the 20*th* or 30*th* part of an *Inch*, *he* can lay them on *Wood*, *Copper* or *Silver* (firſt prepared for the Purpoſe) in ſuch order and manner, and that with great *Expedition*, that thereby *he* repreſents the *Ruins* of *Buildings*, *Proſpects* of *Cities*, *Churches*, &c. upon *dreſſing* or *writing Boxes*, or *Boxes* for any other uſe.

109. *He* alſo repreſents in a moſt exquiſite manner, both the *Iriſh* and *Bredth ſtitch* in *Carpets* and *Screens*, which he makes of this *Straw-work* for the more curious *Ladies;* and with theſe he covers *Tobacco Boxes*, or of any other kind, whether of *Wood* or *Metal*, putting the *Arms* of the *Nobility* and *Gentry*, if deſired, upon the *Tops* or elſewhere: And all theſe with the *Colours* ſo neatly *ſhaded* off, from one another, that at due Diſtance they ſhow nothing *inferior* to *Colours* laid with a *Penſil*. When theſe *Proſpects*, *&c.* are made, he can and does frequently waſh his *Work* with common *Water*, letting it continue at leaſt an *Hour* underneath it; then dries it with a *Spunge*, and beats it with a wooden *Mallet* as thin as may be, and then lays it on his *Boxes*, giving it laſtly ſo curious a *Poliſh*, that no *Varniſhing* excels it: which *Work*, though made of ſuch minute Squares of *Straw*, will endure Portage, and any other as ſevere Uſage, as moſt other *Materials;* none of them being to be gotten off by eaſy means, but will admit of *Waſhing* and *Poliſhing* again, when at any time foul, as well as at the firſt.

110. Which is all concerning *Corn*, whilſt in the *Blade* or *Straw*, what remains relates to the ſeparating the *Seed* from the *Chaff*, and preſerving it in the *Stores*. As to the firſt, they either do it in a good *Wind* abroad, or with the *Fan* at home, I mean the *leaved Fan;* for the *Knee Fan*, and caſting the *Corn* the length of the *Barn*, are not in uſe amongſt them. They that have but ſmall Quantities, when no *Wind* is ſtirring, will do it with a *Sheet;* the Manner thus: Two *Perſons* take a *Sheet*, and double it at the *Seam*, then rolling in each End a little, and holding one Hand at the Top, and the other a Foot or 18 Inches lower, they ſtrike together and make a good *Wind*, and ſome Speed. But the *Wheel Fan* ſaves a *Man*'s Labour, makes a better *Wind*, and does it with much more Expedition.

111. They preſerve it in their *Stores*, as well as *Ricks*, from *Mice* and *Rats* by many *ordinary* Means uſed in other places: but I met with one way ſomewhat *extraordinary*, performed by a peculiar ſort of *Rats-bane*, that kills no Creatures but thoſe for whom it is deſigned, except *Poultry;* ſo that it is an excellent *Remedy*, eſpecially within doors, where *Fowls* ſeldom come, or any other place where they may be kept from it; all *Cats*, *Dogs*, *&c.* taſting it without Hurt. To ſecure their *Corn* from muſting, I have heard of ſome that have laid it in *Chambers* mixt with *Pebble-ſtones* of the larger Size *ſtratum ſuper ſtratum*, *viz.* after every

every ſix Inches Thickneſs of *Corn*, a *ſtratum* of *Pebbles*, placed about a Yard diſtance from each other, then *Corn* again to the ſame Thickneſs, and ſo *SSS* to ten *Lairs* apiece: by which Method, as I was told, *Corn* had been preſerved ſweet and free from *Muſt*, ten Years together, only removing it once a Year, and laying ita gain as before; and in the *Summer* time when the Weather was dry, ſetting open the *Windows* in the Day time and ſhutting them at Night.

112. To recover it from *Muſtineſs*, to its priſtin *Sweetneſs*, ſome have laid it out all *Night*, thin ſpred on *Cloaths*, to receive the Evening and Morning *Dews*, with ſo good Succeſs, that being dryed again next Day in the Sun, the ill Smell has been quite removed. And thus I have done with the moſt uncommon *Arts* I have met with concerning *Plants* related to *Husbandry*, and the whole *Herbaceous* kind: where by the way let it be noted, as in *Chap.* 6. §. 23. that theſe *Arts* are called *uncommon*, not ſo much in reſpect of this, as of other *Counties*, where indeed they will ſeem ſo: And that I have written of them rather for the Information of *Strangers*, than the *Inhabitants* of *Oxford-ſhire*, as I muſt hereafter in other *Counties*, for Information of this. Wherein if through my own *Ignorance*, or *Frowardneſs* of ſome *Husbandmen* (I dare not ſay all) I have failed of that *Accuracy*, that might otherwiſe have been expected, I beg the *Reader*'s Pardon.

113. After the *Herbaceous Plants*, come we next to conſider the *Shrubs* and *Subfrutices*, amongſt which I met with one, perhaps I may ſay ſcarce heard of *Curioſity*, though it hath been an *Experiment* frequently performed many Years ſince, not only by thoſe excellent *Gardeners* and *Botaniſts*, the two *Bobarts*, Father and Son; but as I have heard alſo by the Reverend and Ingenious *Robert Sharrock* LLD, and formerly Fellow of *New College*, who after many unſucceſsful Tryals of *Grafting* one *Fruit* upon another, made at laſt a very pleaſant *one*, and to good *Advantage* too, upon different *Vines*, which in ſo great Meaſure anſwer'd their Hopes, that they have now ſignal Proof in the *Phyſick Garden* of the *white Frontiniac* grafted upon the *Parſly Vine*, growing and bearing very well; and to this *Advantage*, that they think the early ripening Stock of the *Parſly Vine*, to conduce ſomewhat to the earlier Ripening of the *white Frontiniac*, naturally late.

114. They have alſo *grafted* the *early red-cluſter* or *Currant-grape*, upon that large, luxuriantly growing *Vine*, called the *Fox-grape*, which ſeems to produce much fairer and ſtronger *Fruit*, than that *Grape* is uſually upon its own *Stock*. And divers other *Experiments* of this *Nature* they ſay may eaſily be made, as well as to have *White* and *Black*, or other *Varieties*, as they have already *broad-leav'd* and *narrow-leav'd*, *early Grapes* and *late ones*, on the ſame *Stock*: But this is not to be done by preſent *Amputation*, as in other *Fruits*, the Wood being not ſufficiently ſolid to bear it.

115. As to the *Arts* relating to *Trees*, the chiefeſt are thoſe of the *Planter* and *Gardener* making curious *Walks*, and *Topiary Works* of them; ſuch is the *Dial* cut in *Box* in *New-College* Garden; the *King's Arms*, and the *College* Coat of *Arms* there, and at *Exeter-College*; beſide the other Garden *knots* of *Box* in both thoſe *Colleges*, and in *Brazen-Noſe-College* Quadrangle; to which add the *Guards* at the *Phyſick-Garden* Gate of *Gigantick* ſtature, and ſeveral other *Topia* in the ſame *Garden*, all formed of the *Yew-Tree*. Of *Walks*, the moſt curious I have met with in this County, are thoſe elegant ones of *Trees* of various kinds in *Cornbury Park*; and (to omit the numerous Walks in and about the *Univerſity*) thoſe of *Firrs* at Sir *Peter Wentworth*'s at *Lillingſton Lovel*, and the pleaſant *Viſta* at *James Tyrril*'s Eſq; from a ſhort Walk of *Trees* toward the *Chiltern Hills*; and for a *cloſe Walk* there is a fine one in *Grimes-Ditch*, near *Ditchley*, a Seat of the Right Honourable *Edward Henry* Earl of *Lichfield*'s, about half a Mile in length.

116. For *Garden Walks*, I think one of the longeſt I met with, was at the Worſhipful Mr. *Clerk*'s at *Aſton-Rowant*. And for a Deſcent, there are none like the Walks at *Rouſham*, in the Garden of the Worſhipful *John Dormer* Eſq; where there are no leſs than *five* one under another, leading from the *Garden* above, down to the *River* ſide, having *Steps* at each End, and parted with *Hedges* of *Codlings*, &c. But of all that I ever met with, there is a Walk at the Worſhipful Mr. *Fermor*'s of *Tuſmore*, the moſt wonderfully pleaſant, not only in that it is placed in the middle of a *Fiſh-pond*, but ſo contrived, that ſtanding in the middle no Eye can perceive but it is perfectly *ſtraight*, whereas when removed to either End, it appears on the contrary ſo ſtrangely crooked that the Eye does not reach much above half the way.

117. Which

117. Which deception of ſight moſt certainly ariſes from a *Bow* in the middle, which ſeems only an *Ornament*, and the *incapacity* of the *Beholder* of ſeeing both parts of the *Walk* at one time; which that it may be the better apprehended, ſee the manner of it *Tab.* 13. *Fig.* 3. where the *letter a* ſhews the *Walk* from the *Garden* tending toward *that* in the *Fiſh-pond*, *b* the place of the *Beholder*, *c* the *Semicircle* or *Bow* oppoſite to *him*, *d e* the two Ends of the *Walk*: Now the *Beholder* being placed in *b*, and having the *Bow* before *him*, is not commonly ſo wary as to find, that if the lines *f g h i* were continued, they would *decuſſate* and not fall into *ſtraight* lines, nor that the *Walks* themſelves would do the ſame, becauſe *he* ſees but one *ſtraight* part of the *Walk b d* at one time, and the other *b e* at another time, which when ſeen together at either End, plainly meet in an *Angle*, and by reaſon of the ſide *Hedges* terminate the ſight at little more than half way at *k l*.

118. Hither alſo belong the *Methods* whereby they order their *Woods* in this *County*, which if *Under-woods* in or near the *Forreſt* of *Whichwood*, they commonly fell not till *twenty Years* Growth; but in the *Chaſe* near by it, ſometimes at ſeven or eight: dividing them into *Acres* and *Braids* (or Bredths) every *Acre* containing forty *Braids*, a *Braid* being one *Pole* long and four broad; into which they thus divide their *Woods* for the better Sale of them to the meaner ſort of People, ſome buying ten, others twenty, and ſome thirty *Braids* or more.

119. In the *Chiltern Country* they fell their Under-wood *Copices* commonly at eight or nine *Years* Growth, but their *Tall-wood*, or *Copices* of which they make *tall Shids*, *Billet*, *&c.* at no certain time; nor fell they theſe *Woods* all together, but draw them as they call it, almoſt every *Year* ſome, according as their *Wood* comes to be of a fit Scantling for *tall Shid* or *Billet*, cutting every *Shid* of *Tall-wood* four Foot long beſides the *Kerf*, and the *Billet* three Foot four Inches, according to the *Statutes* of the 7 of *Edward* 6. 7. and the 43 of *Q. Eliz.* 14. which ought alſo according to the ſame *Statutes*, whether *round bodyed*, *half round*, or *quarter cleft*, to be of a certain number of *Inches* about, according as named or marked of ſo many *Caſt*, as may be ſeen particularly in the *Statutes* at large. Which is all concerning *Arts* relating to *Plants*, except it ſhall be thought worthy Notice, that they uſe *Ropes* in this *Country*, made of the Bark of the *Tilia fœmina folio minore*, ſmall leav'd

Lime or *Linden-tree*, in ſome *Countries* called *Baſt*; whence the *Ropes* are alſo called *Baſten-ropes*; but of theſe no more, the *Tree* neither growing, nor the *Ropes* being made in this *County*, but only uſed here.

120. Of *Arts* relating to *Brutes*, I have met with none extraordinary concerning the *winged Kingdom*, but the new ſort of *Boxes*, or *Colony Hives* for *Bees*, firſt invented, I ſuppoſe, by the Right Reverend Father in God *John Wilkins*, late Lord Biſhop of *Cheſter*; notwithſtanding the Pretenſions of *John Gedde* Gent. and his ſeven Years Experience: for there was one of *them* ſet up in *Wadham-College* Garden, when the above-mentioned accompliſh'd Biſhop was *Warden* there. For *Fiſh*, I was ſhewed the Model of a *Net* contrived by the Ingenious Sir *Anthony Cope*, that ſeem'd likely to catch all found within ſuch a Compaſs.

121. Relating to four footed Beaſts, the Ingenious *Richard Fermor* of *Tuſmore* Eſq; ſhewed me a pretty Contrivance to avoid the Incumbrance of *Oat-tubs* in *Stables*, eſpecially where they are any thing ſtreightned in their *room*, by letting the *Oats* down from a *Loft* above, out of a *Veſſel* like the *Hopper* of a *Mill*, whence they fall into a ſquare *Pipe* let into the Wall, of about four Inches *Diagonal*, which comes down into a *Cup-board* alſo ſet into the Wall, but with its end ſo near the *Bottom*, that there ſhall never be above a *Gallon*, or other deſirable Quantity in the *Cup-board* at a time, which being taken away and given to the *Horſes*, another *Gallon* preſently ſucceeds; ſo that in the lower part of the *Stable* where the *Horſes* ſtand, there is not one Inch of Room taken up for the whole Proviſion of *Oats*; which Contrivance has alſo this further Convenience, that by this *Motion* the *Oats* are kept conſtantly *Sweet* (the taking away one *Gallon* moving the whole *Maſs* above) which laid up any otherwiſe in great Quantities grow frequently *muſty*.

122. The ſame Ingenious *Gentleman* has alſo applied the ſame Contrivance, with ſome little Alteration, to the feeding of his *Swine*, which have conſtantly their *Meat* from ſuch a *Veſſel* like the *Hopper* of a *Mill* placed over the *Sty*, into which having put a certain Quantity of *Beans*, enough to fat ſo many *Hogs*, they continually deſcend to about half way down the *Sty* in a large ſquare *Pipe*, which then divides it ſelf into ſix ſmaller *ones*, which terminate each of them in a ſmall *Trough*, no bigger than juſt to admit the

Noſe

Noſe of a *Hog*, and come all of them with their *Ends* ſo near the *Bottom*, that there is never above an Handful of *Beans*, in each *Trough* at a time, which taken away by the *Hogs*, there follow ſo many Handfuls again, but never more: ſo that having alſo drawn a ſmall *Rivulet* of Water through the *Sty*, the daily Trouble of *Servants* waiting on them is not only ſaved (for they need never come near *them* till they know they are *fat*) but the *Hogs* themſelves are alſo made hereby uncapable of ſpoiling a *Bean*, by trampling or piſſing amongſt them as in moſt other *Styes*, they never having above a Handful at a time, and thoſe in a *Trough* too ſmall to admit any ſuch means of *waſte*.

123. He has Thoughts alſo of applying the ſame Contrivance to the feeding of his *Hounds*; and has made *Stalls* for *Oxen*, by *Spars* of Wood deſcending perpendicularly from the utmoſt *Rim* of the *Rack*, and nailing Boards on them half way up before the *Oxen*, that they cannot ſpoil by trampling, or any other means, the leaſt *Straw* or *Graſs*, all that go beſide their Mouths falling ſtill within the Boards nailed upon the *Spars*, which when come to any Quantity, is returned into the *Rack* as ſweet and good, as when put there at firſt. Which being Matter of *Architecture* relating to *Beaſts* bring me next to treat,

124. Of *Arts* that reſpect *Mankind*, and firſt of *Architecture*, wherein we have many remarkable *Curioſities*, as well in the *Country* as *Univerſity*; ſome whereof are of an *inferior*, others of a more *honourable* Rank and Quality. Of the firſt ſort are ſeveral *Mills* that I have met with in this *County*, ſcarce perhaps to be found elſewhere in *England*; ſuch is that at the ſame ingenious Mr. *Fermor*'s at *Tuſmore*, which with one *Horſe* and *Man* (who is carried round as it were, in a *Coach-box* behind the *Horſe*) performs at pleaſure theſe very many *Offices*. Firſt, it grinds *Apples* the common way for *Cyder*. And ſecondly *Wheat*, which it *ſifts* at the ſame time into four different Fineneſſes. Thirdly *Oats*, which it cuts from the *Huſk*, and *winnows* from the *Chaff*, making very good *Oat-meal*. And laſtly makes *Muſtard*, which indeed is a meer *Curioſity*. And all theſe it performs ſeverally, or together, according as deſired.

125. At *Hanwell*, in the Park, there is alſo a *Mill* erected by the ingenious Sir *Anthony Cope*, of wonderful contrivance, where-with that great *Virtuoſo* did not only grind the *Corn* for his Houſe, but with the ſame motion turned a very large *Engine* for cutting the hardeſt Stone, after the manner

manner of *Lapidaries;* and another for boaring of *Guns:* and theſe, as in the *Mill* at *Tuſmore,* either ſeverally or all together, at pleaſure.

126. To theſe add the *Mill* for making *French-Barley,* erected ſome Years ſince upon the *River* near *Carverſham,* by one Mr. *Burnaby,* but are now carried on by one Mr. *Nelthrop* of *London,* Merchant: They are four in number, and differ from other *Corn Mills,* chiefly in the following particulars. 1. In that they have always *double Tackling.* 2. The *Stones* not being the *Cologne,* but ordinary *white Stones;* which thirdly, are both of them cut the *ſending way*: and fourthly, the upper *Stone* or *Runner,* hung about a hands breadth diſtant from the *lower* or *Bed Stone,* alſo called the *Legier.* They put in the *Corn,* about half a Buſhel at a time, not at the *Eye,* but round the *Hoops* at the ſides of the *Stones;* they ſtop the *Spout* or *Tunnel,* and let the *Mill* run juſt an hour, for if the *Corn* ſtay longer the *heat* will turn it *Yellow:* then they let it out, and ſever the *Bran* and *Flower* from the *Corn,* and put it up again into another *Mill* of the ſame kind, and let it run in the ſame manner another hour, and the *work* is finiſhed.

127. Hither alſo muſt be referred the *Mault Kills* of *Henly,* ſo thriftily contrived, that the *Kill holes* are placed in the backs of their *Kitchin Chimneys,* ſo that drying their *Mault* with Wood, the ſame *Fire* ſerves for *that,* and all the other uſes of their *Kitchins* beſide. To this place alſo belongs a ſort of *Oaſt* made about thirty Years ſince by one *Philips* a Baker formerly of *Magdalen Pariſh Oxon,* who having a very great *Oven,* made it plain at the top and plaiſter'd it over, whereon laying *Mault,* he dryed it with the ſame *Fire* that heated his *Oven* for the Bread, and thus made the beſt *Mault* that *Oxford* afforded, and of neceſſity the cheapeſt, for the *Fire* coſt him nothing. I have heard alſo of the ſame *method* uſed at *Henly* on the *Thames;* and theſe, as ſome have ventured to aſſert, gave the firſt hints to the *Invention* to that ſort of *Kills* whereby they dry *Mault* with *Coal;* but herein I dare not be too confident, not knowing of what ſtanding thoſe *Kills* are, otherwiſe the thing ſeems to be likely enough.

128. Thus having run through thoſe of *inferior* rank, I come next to the remarkable *curioſities* of *Architecture* in our moſt *ſtately Buildings,* and that have a more immediate relation to *Mankind* than any before mentioned, whereof ſome are *private,* others *publick;* and may both be conſidered

ſidered either in the *whole* or *parts*. Of *private Buildings*, the moſt eminent in this County, are the *Seats* of the Right Honourable the Earl of *Angleſey* at *Blechington*; the Earl of *Clarendon* at *Cornbury*; the Earl of *Lichfield* at *Ditchley* and *Lees-Reſt*; the Earl of *Abington* (Her Majeſties Lord Lieutenant of *Oxford-ſhire*) at *Ricot*; Lord *Guilford* at *Wroxton* Abbey; the Lord Viſcount *Say* and *Seal* at *Broughton* N. *Newington* and *Shetford*; the Lord *Craven*'s at *Caverſham*; the Lady *Abergavenny*'s at *Sherborn* Caſtle; the Lord *Wenman*'s at *Thame* Park and *Caſwel*; and of the Honourable *James Herbert* Eſq; late of *Tythrop* in *Oxford-ſhire*, though of *Kingſey* Pariſh in the County of *Buckingham*.

129. Whereunto might be added ſeveral *Structures* of the *minor Nobility*, that ſhew a great deal either of paſt or preſent Magnificence, ſuch as that of the Right Worſhipful Sir *Anthony Cope* late of *Hanwell*, of Sir *John Cope* at *Bruern* Abbey, the Lady *Spencer* at *Tarnton*, Sir *Robert Daſhwood* at *Northbrook*, Sir *John Curſon* at *Waterperry*, Sir *Edward Cobb* at *Adderbury*, Sir *Anthony Craven* at *Caverſham*, Sir *William Glyn* at *Amerſden*, Sir *Robert Jenkinſon* at *Walcot*, Sir *John Walter* at *Sareſden*, Sir *Fairmedow Penyſton* at *Cornwel*, Sir *Compton Read* at *Shipton* under *Whichwood*, Sir *Thomas Tipping* at *Whitfield*, Sir *John D'Oyly* at *Chiſlehampton*, Sir *Edward Norreys* at *Weſton* on the *Green*, Sir *Henry Aſhurſt* at *Waterſtoke*, Sir *Simon Harcourt* at *Stanton Harcourt*, Sir *Henry Johnſon* at *Water-Eaton*. And of the Worſhipful *Thomas Stonor* at *Watlington* Park and *Stonor*, Eſq; *Anth. Keck* at great *Tew*, Eſq; *John Dormer* at *Rouſham*, Eſq; *Rich. Fermor* at *Tuſmore* and *Sommerton*, Eſq; *Carlton Stone* at *Brightwel*, Eſq; *John Clerk* at *Aſton Rowant*, Eſq; *Tho. Hoard* at *Coat*, Eſq; *Arthur Jones* at *Chaſleton*, Eſq, *Baſil Brook* at *North-Aſton*, Eſq; and the *Seats* of the Families of *Knolles* at *Rotherfield Grays*, and *Blount* at *Maple Durham*, Eſqs; To which add the *Parſonage* Houſe of the Rectory of *Chinner*, little inferior to ſome of the afore-mentioned, either in *Greatneſs*, *Commodiouſneſs*, or *Elegancy* of Building.

130. And yet amongſt all theſe eminent private *Structures*, could I find nothing extraordinary in the *whole*: But in the *parts*, the *Kitchin* of the Right Worſhipful Sir *Simon Harcourt* Knight, of *Stanton Harcourt*, is ſo ſtrangely unuſual, that by way of *Riddle* one may truly call it, either a *Kitchin* within a *Chimney*, or a *Kitchin* without one; for

below

below it is nothing but a large *ſquare*, and *Octangular* above aſcending like a *Tower*, the *Fires* being made againſt the *Walls*, and the *Smoak* climbing up them, without any *Tunnels* or diſturbance to the *Cooks*; which being ſtopped by a large *Conical* Roof at the top, goes out at *Loop-holes* on every ſide according as the *Wind* ſits; the *Loop-holes* at the ſide next the *Wind* being ſhut with falling doors, and the adverſe ſide opened.

131. The ſpacious *Stair-caſe* at *Blechington* Houſe is alſo remarkable, not only that it ſtands on an *Area* of 30 Foot ſquare, but for its Rarity too, it being not perhaps at all, at leaſt not eaſy to be met with amongſt the Writers of *Architecture*: Wherefore, though I cannot approve of its *Contrivance* in all Particulars, yet for the ſake of its *Magnificence* and *Variety* from moſt, if not all *others*, I cannot in Juſtice but afford it a ſhort Deſcription.

132. It being placed therefore backward, oppoſite to the moſt honourable *Entrance* of the Houſe, between two *Wings* that extend themſelves beyond it, and the Groſs of the *Pile*, you enter upon it having paſſed by the *Hall*, and other *Offices* uſually placed by it, at the *Door-way* A, *Tab.* 13. *Fig.* 4. and land upon the *half Pace* 1, which together with the *reſt* marked 234, *&c*, are 6 Foot $\frac{1}{3}$ ſquare: The *Figures* in their natural Order ſhew how you aſcend from one *half Pace* to another, by *Aſcents* of 7 Steps, each about 5 Inches $\frac{1}{2}$ deep, and near 10 Inches $\frac{3}{4}$ broad: The *half Paces* marked with the ſame *Figure* lye on the ſame *Level*, and therefore as 4 is the higheſt *half Pace* in this firſt *Scheme* of it, ſo it is the loweſt in the ſecond, *Tab.* 13. *Fig.* 5.

133. In which alſo the Order of the *Figures* ſhews the manner of *Aſcent* juſt as in the former, only it muſt be obſerved, that as the *Aſcent* to the *half Pace* 4 in the firſt *Scheme*, was ſuppoſe from *Eaſt* and *Weſt*, ſo the *Aſcent* higher from it in the ſecond, is to *North* and *South*: Of which two *Schemes* placed alternately over one another, the whole *Stair-caſe* is framed from bottom to top, which is eaſily apprehended, if you but imagine the *half pace* 4 in the ſecond *Scheme*, to be placed over 4 in the firſt, and ſuch another *frame* as is delineated in the firſt *Scheme* to be placed on the ſecond: The *Letters V V* ſhew the vacancies that open a *Proſpect* from the top to the bottom of the whole *Stair-caſe*, and *a b c d* ſhew the places of the *Doors* into the *Rooms* at each corner of it.

134. In

134. In ſhort, this *Stair-caſe* ſeems to be a compoſition of 4 half-pace-open-newel'd *Stair-caſes*, as may eaſily be perceived by the *figures*, 123, 123, 123, 123, and 567, 567, 567, 567, only communicating in the middle; which indeed ſhews very magnificently, but has this Inconvenience, that there is no Paſſage from one *Room* into *another* though on the ſame *Floor*, without going up and down many Steps; as in *Scheme* the ſecond, if from *a* to *b*, and ſo of the *Rooms* of any of the other ſides, you have no *Paſſage* but from 6 to 7, and ſo down again to 6, *i.e.* 14 Steps. But if you are to go from Corner to Corner, as ſuppoſe from *a* to *c*, or *b* to *d*, *& vice verſa*, whether you paſs round the Sides, or over the middle *half Pace*, you cannot do it, without aſcending and deſcending in all twenty eight Steps.

135. Of publick Buildings, the moſt eminent in the *County* are certainly thoſe of the *Colleges* and *Halls*, the *Publick Schools*, *Library* and *Theater* in the *Univerſity* of *Oxford*; of which yet in the whole I ſhall give no account, their Magnificence and outward *Architecture* being already ſufficiently ſhewn, by the exquiſite Hand of Mr. *David Loggan*, *Chalcographer* to the *Univerſity*, in his *Cuts* of them formerly ſet forth. It ſhall ſuffice me therefore to give a ſuccinct account of ſome particular parts of them, whether in the *Stone* or *Timber-work*, ſcarce to be met with elſewhere, or known to few.

136. Of the firſt ſort, is the *flat Floor* of *Stone* over the Paſſage between the Reverend the *Provoſt*'s Lodgings, and the *Chappel* at *Queens-College*, born up only by the ſide *Walls* without any *Pillar*, though conſiſting of divers *Stones* not reaching the *Walls*, which yet indeed may very well be, ſince I was informed by the then Right Reverend *Provoſt*, *Biſhop* of *Lincoln*, who pulled up the Boards of the *Room* above to view the *Curioſity*; the *Stones* are all *Cuneoform*, and laid like that they call *ſtraight Arch-work*.

137. The Roof of *Merton-College-Treaſury* is alſo an odd Piece of *Stone-work*, being all made of *Aſhler*, yet ſlooping to an *Angle* (only more acute than uſual) like *Roofs* made of *Timber*: It has, 'tis true within, three inequidiſtant arched *Ribs* of *Stone* that ſeem to ſupport the *Fabrick*, which is about 20 Foot long, but the *Stones* not reaching from *Rib* to *Rib*, and ſeeming to be laid like common *Pavement* both within and without, make many to wonder that it does not fall in: but the *Stones* being pretty

thick, and cut as they call it, with an *arching Joint*, muſt neceſſarily lye as firm (and for the very ſame Reaſon) as thoſe at *Queens-College* do, and ſo moſt certainly they would, were the *Arches* quite removed. There is alſo much ſuch another *Roof* over a little *Oratory* or *Chappel* in the *Church* of *North-Leigh* in this *County*.

138. As for arched *Roofs* of *Stone*, that of the *Divinity-School* is a fine Piece of *Architecture*; and ſo is that of the ſtately *Stair-caſe* leading into *Chriſt-Church* great *Hall*. The *Phyſick-garden* Gate is a curious Piece of *ruſtick Rock-work*; and the *Porch* at St. *Mary*'s, the *Univerſity Church*, is very well contrived. And were it not improper amongſt theſe to mention a *Structure*, of ſo inferior a Quality, as *New-College* Houſe of *Eaſement*, commonly called the *Long-houſe*, I could not but note it as a ſtupendious Piece of *Building*, it being ſo large and deep, that it has never been emptyed ſince the Foundation of the *College*, which was above 300 Years ſince, nor is it ever like to want it.

139. The *Portico*'s on the *Eaſt* and *Weſt* ſides of the *New-Quadrangle* at St. *Johns-College*, built by the moſt Reverend Father in God, *William Laud*, Arch-Biſhop of *Canterbury*, ſupported with *Pillars* of *Blechington* Marble, are well worthy Notice; and ſo is the Cloyſter at *Magdalene College*, the Buttereſſes without being curiouſly adorned with *Hieroglyphical Imagery*.

140. The erect Southern declining *Dial* over *All-Souls College* Chappel, is a neat Piece of Work, ſo curiouſly contrived by Sir *Chriſtopher Wren*, that though it ſtand high, yet by the Help of two *half Rays*, and one *whole one* for every *Hour*, one may ſee to a *Minute* what it is a *Clock*, the *Minutes* being depicted on the ſides of the *Rays*, *viz.* 15 on each ſide, and divided into *Fives* by a different *Character* from the reſt.

141. The *Cylindrical Dial* in *Corpus-Chriſti-College Quadrangle*, ſet at right *Angles* with the *Horizon* (the common *Sections* whereof, with the *Hour Circles* (except the *Meridian Circle* which divides it by the *Axis*) as alſo the *Æquinoctial*, are all *Elipſes*) is a fine old Piece of *Gnomonicks*; of which no more, becauſe its Contriver Mr. *Robert Heggs*, formerly Fellow of the *College*, has already written of it [f]. And the *Dials* made upon a Pile of *Books* formerly on *New-College* Mount, with *Time* on the top, exactly pointing out from

[f] *Tract. de Horologiis, lib. 4. cap. 4.* MS. *in Biblioth.* C. C. C.

what

what *Quarter* the Wind blows, upon the 32 Points of the *Compaſs*, depicted on a *Cylinder* of *Stone*, was an ingenious Contrivance.

142. There are many lofty *Spires* about the *Country* as well as *City*, built all of *Free-ſtone*, and of exquiſite Workmanſhip, ſuch as thoſe of *Bampton*, *Witney*, *Burford*, *Bloxham*, *Spelsbury*, *Kidlington*, &c. but that which excels all the reſt is the *Spire* of St. *Mary*'s in *Oxford*, the *Univerſity* Church, the Battlements whereof were repaired, and thus thick ſet with *Pinnacles* as it now ſtands, by Dr. *King* then Dean of *Chriſt-Church*, and *Vice-Chancellor* of the *Univerſity*, afterwards Biſhop of *London*.

143. For Towers, that of *Merton-College* is large and well built; and ſo is that of the *Schools*, but more remarkable, for that it is adorned on the inner ſide next the *Quadrangle*, with all the *Orders* of *Pillars*. But for a neat plain Piece of Work, that of *Magdalen-College* excels all I have yet ſeen, adorned on the top with well proportion'd *Pinnacles*, and within with a moſt tunable ſweet Ring of *Bells*.

Miraris Turrim egregiam ſacro Ære ſonantem.

144. Amongſt *Curioſities* in *Timber-work*, we may reckon ſeveral *Screens* in *College Chappels*; ſuch as that of *Magdalen College*, that of *Univerſity College*, that of *Cedar* at *Lincoln College*, that of *Cedar* at *Trinity College*, and another at *Corpus Chriſti*. There is an *Altar-rail* at *All-Souls-College* of curious Workmanſhip, and to this place belongs the *Tomb* of St. *Frideſwide*, ſtill remaining at *Chriſt-Church*, the Top whereof is *Wood*, and a fine old piece of Work: But not comparable to the Tomb of *fair Roſamund* at *Godſtow*, in the Chapter-houſe of the *Nuns* there, which according to the Deſcription of *Ranulph Higden* ſeems to have been alſo of *Wood*, and of wonderful Contrivance, *ciſta ejuſdem puellæ* (ſays he, having ſpoken before of her *Death* and *Epitaph*, and of the *Amours* between *her* and K. *Henry* the ſecond) *vix bipedalis menſuræ, ſed admirabilis Architecturæ ibidem cernitur, &c* [g]. *i. e.* That her *Cheſt*, *Coffin* or *Tomb* was there to be ſeen, not above two Foot *long*, or perhaps rather *ſquare*, but a ſtupendous piece of Workmanſhip, *in qua* (ſays the ſame Author at the ſame place) *conflictus Pugilum, geſtus animalium, volatus avium, ſaltus piſcium abſque hominis impulſu conſpiciuntur*, *i. e.* wherein might be ſeen

[g] *Ranulphi Higden Polychron. Lib.* 7. *in Hen.* 2. *MS. fol. in Bib. Bod.*

the *Conflicts* of *Champions*, the *Geſtures* of *Animals*, the *Flights* of *Birds*, with *Fiſhes* leaping, and all done without the Aſſiſtance of *Man*.

145. By what means this was effected, we are not informed by the afore-cited Author, but the Learned *Thomas Allen* M. A. formerly of *Glocester-hall*, thought it might be done by a ſort of *Looking-glaſs*, whoſe Structure he found mentioned in an ancient MS. *De Arcanis & Secretis*, with this Title, *Speculum in quo uno viſu apparebunt multæ imagines moventes ſe.* To be made thus, *accipe pixidem bene profundam, & pone in fundo ejus ſpeculum commune, ſc. convexum, poſtea, &c.* Take, ſays the Author, a deep *Box*, and place in the Bottom of it a common *convex Glaſs*, then take 6 or 7 other *convex Glaſſes* of the ſame Bigneſs, and Scrape off the *Lead* [*plumbum* is the Word] in the *concave* part with a Knife; where by the way the Author adviſes, that ſince it is very hard to get the *Lead* clean off without breaking the *Glaſs*, that *Quick-ſilver* be made uſe of, to anoint the *Lead* to get it off.

146. Theſe *Glaſſes*, when made *clean*, he orders to be put into the *Box*, ſo as they ſtand *obliquely* in divers Poſitions, in this manner: When the firſt *Glaſs* is put in the Bottom, the ſecond muſt be ſo put, that one ſide of it muſt touch the firſt *Glaſs*, and the oppoſite ſide be diſtant from *it* an Inch, *& ſic* (ſays he) *oblique pones in pixide.* In the top there muſt be put one cleanſed *Glaſs* as the firſt, *plain* and not *obliquely*, ſo that nothing muſt be ſeen but the uppermoſt *Glaſs*, into which if you look, you ſhall ſee as many *Images* as *Glaſſes*; and if turned round, how one *Image* always ſtands ſtill in the middle, and the reſt run round it, as if they went about to dance. Of which *contrivance*, though I underſtand not ſome particulars, yet I thought fit to mention them, becauſe they may poſſibly meet with a *Reader* that may, and tranſlate them too as well as I could, for the benefit of them all. As for thoſe that have opportunity, and are deſirous of ſeeing the *Latin* Copy, they may find it in a *Miſcellaneous* MS. in Mr. *Selden*'s Library [h]. For my part, all that I can add concerning it, is, that I have ſeen a ſort of *Cabinets* of this nature, that by the help of *Glaſſes* placed *obliquely* have ſhewn ſuch pretty *proſpects*.

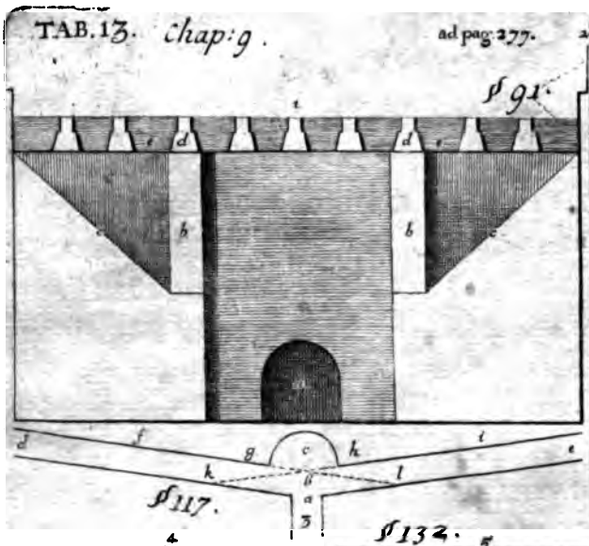
147. The great *Bivalve wooden Windows* in the upper Gallery of the *Theater*, are ſo ingeniouſly contrived, that notwithſtanding their great *Weight*, yet can never ſink ſo

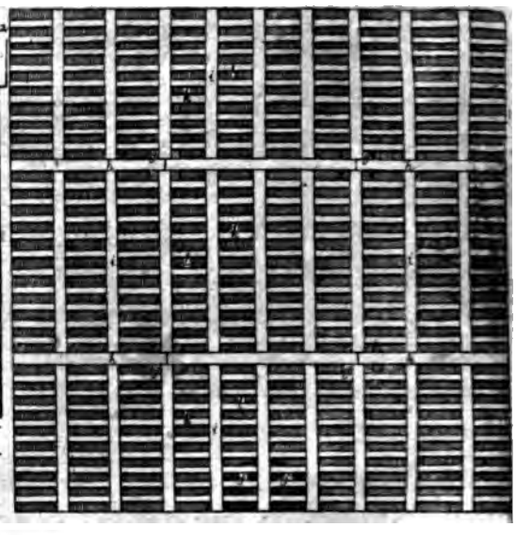
[h] 4° *MS.* 79 *in Biblioth. Selden.*

as

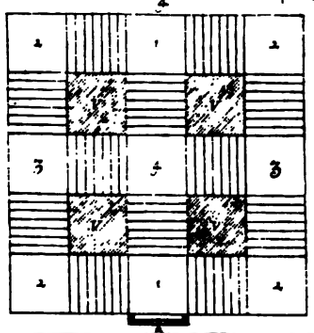
TAB. 13. chap: 9. ad pag: 277.

§ 91.

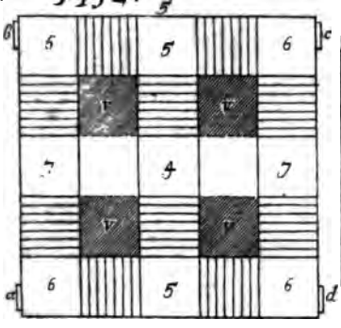




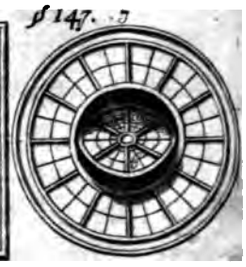
§ 117.

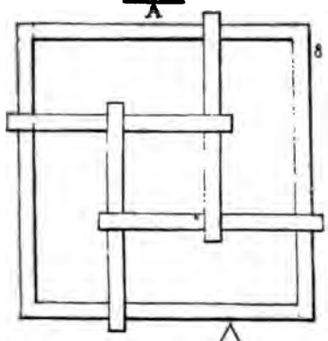


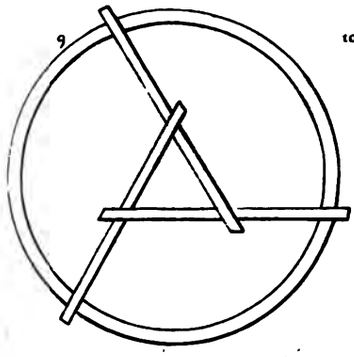
§ 132.

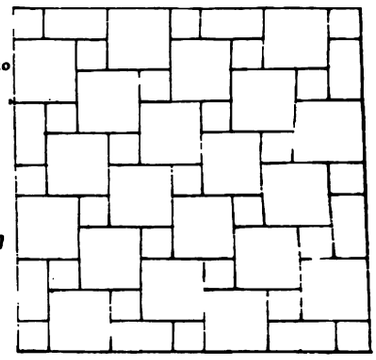


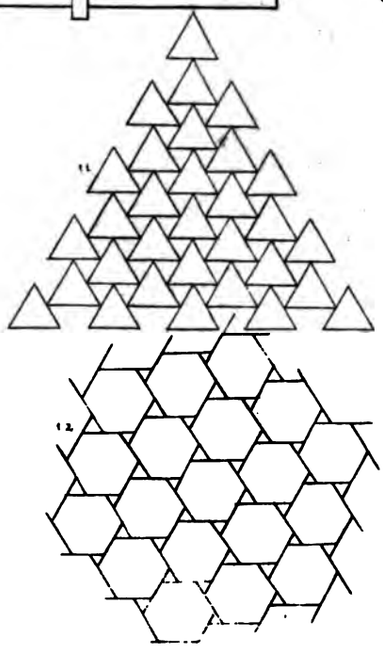
§ 147.











§ 148.

and 70 the other, whoſe *Lockages* being ſo quite different from *any* before-mentioned, and in many other *particulars* perhaps not to be parallel'd in the *World*, I have taken care to repreſent an exact Draught of it, *Tab.* 14. *Fig.* 1.

150. Wherein *aaa* and *bbb* ſhew the *Walls* of the *Theater* that ſupport this *Frame* of *Timber*, and the Places of the *Pilaſters* of the *Rail* and *Balliſter* round it; *ccc* and *ddd* the *Leads* and *Pipes* let down into the Wall for Conveyance of *Water*, *eee* and *fff* the *Wall-plate* or *Lintel*, and Places of its Joints; *ggg* the *Girders* of the *Semi-Circle*, each ſupported by a *King-piece* or *Crown-poſt* cut off at *hhh*, and ſcrewed into the *Binding-beam iii*; which is ſomewhat different from the reſt of the *Binding-beams kkk*, *lll*, *mmm*, *nnn*, having ſeveral *Prick-Poſts* let into it at *oooo*, beſide the *King-poſts* that ſupport this and the reſt at *ppppp*, &c. The Letters *qqq* ſhew the *Purlines* between the *Binding-Beams*, not ſet right againſt one another becauſe of room to turn the *Screws* whereby they are faſtened, and *rrrr* two *Dragon* (perhaps rather *Trigon*) *Beams* or *Braces* lying under the *Joiſts ss ss ss*, &c. the true *Lengths* and *Diſtances* whereof, and of all other Pieces of *Timber* and *Places* whatever, are all ſhewn by the *Scale*, *Fig.* 2.

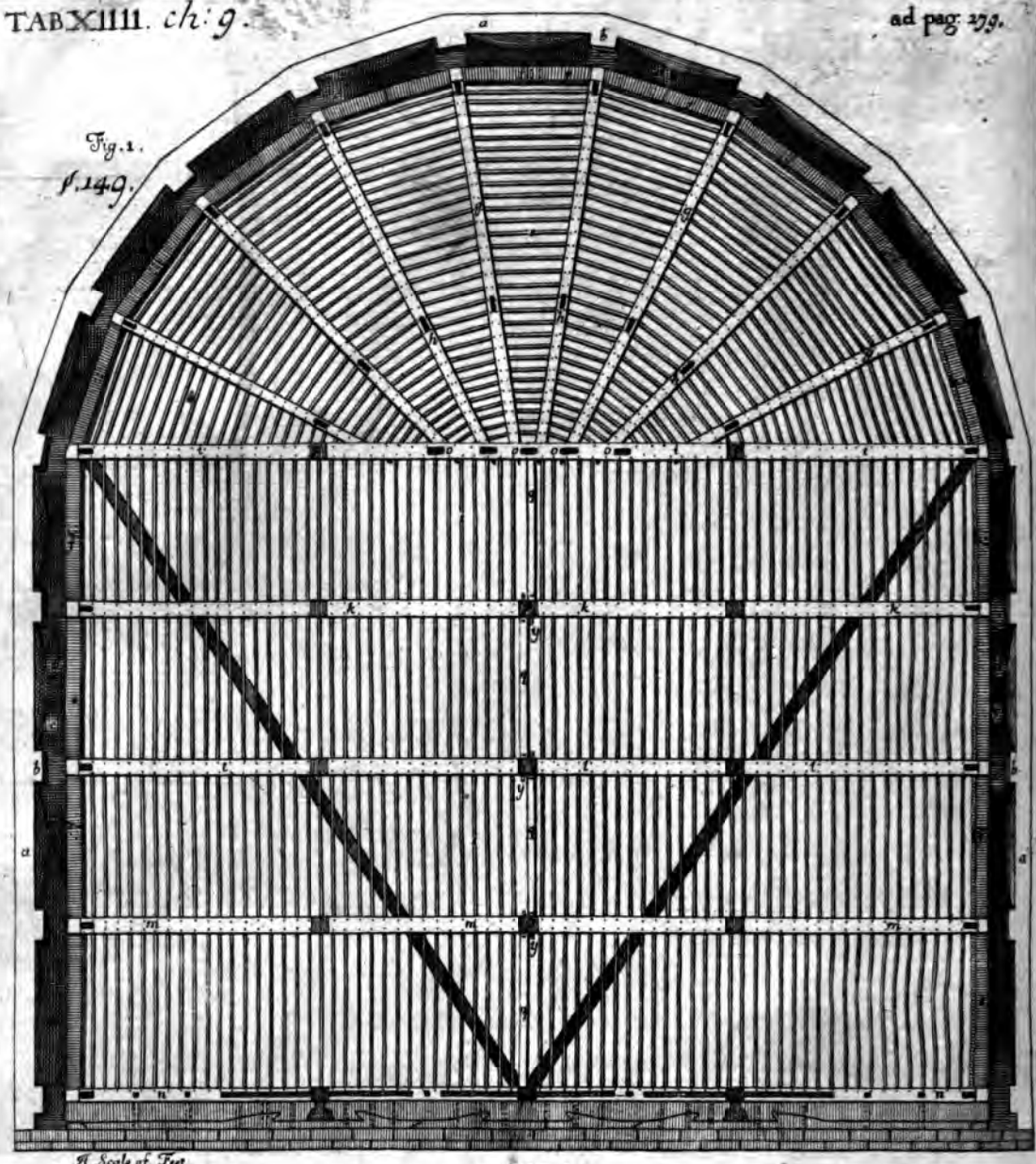
151. And ſo are the *Lengths* and *Diſtances* of the ſeveral Pieces of *Timber* ſet over this *flat Floor*, ſuch as the *principal Rafters tttt*, the *Crown-Poſts* or *King-pieces uuuu*, the *Prick-poſts wwww*, *Braces* or *Punchons xxxx*, by all which together, the *Binding-beams*, *Girders*, *Joiſts*, &c. are all held up as it were by an *Arch* above, as in *Tab.* 14. *Fig.* 3. which is the whole *Band* of *Timber* that ſtands next the *Semi-circle*, having *Prick-poſts* and different *Lockages* from the reſt of the *four Bands*, as is ſufficiently repreſented by one *half* of one of them, *Tab.* 14. *Fig.* 4.

152. Which is all I think need be ſaid concerning this fine Piece of *Timber-work*, only that there are *Croſs-Braces* between the middle *Crown-poſts* as they ſtand in a line from the *Front* to the *Semi-circle*, as is repreſented *Tab.* 14. *Fig.* 5. marked with the Letters *yyyyyy* both here, and as they ſtand *Fig.* 1. And that it was contrived by our Engliſh *Vitruvius*, the Right Worſhipful and Learned Sir *Chriſtopher Wren*, and worked by *Richard Frogley* an able *Carpenter*; and both *this*, and the *Stone-work* too, at the ſole Charge of the moſt Reverend Father in God, *Gilbert*, by Divine Providence, Lord Arch-Biſhop of *Canterbury*, Primate of all *England*, and Metropolitan, who finiſhing, and having endowed

TAB XIIII. ch: 9.

ad pag 279.

Fig. 1.
p. 149.



A Scale of Feet.

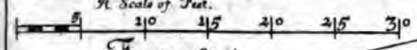
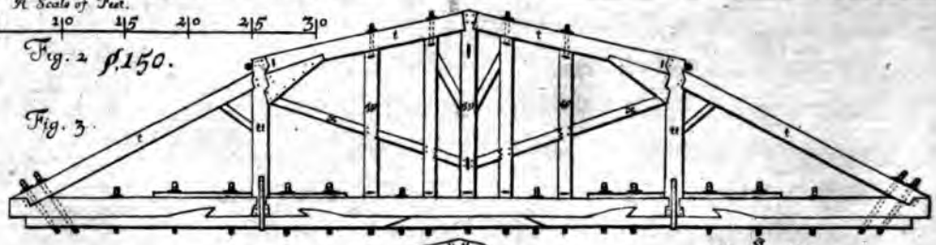


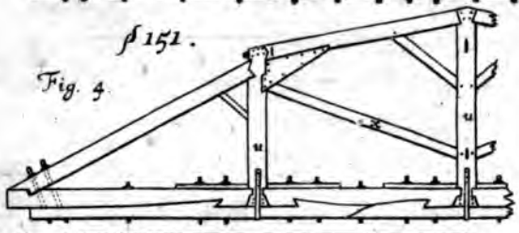
Fig. 2 p. 150.

Fig. 3.



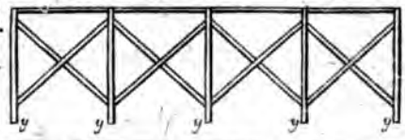
p. 151.

Fig. 4.



p. 152.

Fig. 5.



Burghers sculp.

To the right Worsp.ll
S.r FRANCIS WENMAN K.t & Bar.t
K.t of the SHIRE in the p.sent Parliam.t
This 12 Table
Shewing the Timberwork of the THEATER cont
all due respect is humbly dedicated
by R. P. L. L. D.

endowed *it* with a competent *Eſtate* for its Reparations for ever, it is like to ſtand a moſt magnificent and laſting *Monument* of his *Grace's* Munificence, and Favour of good *Learning*, to all Poſterity.

153. There are ſeveral other *Roofs* in this *Univerſity* alſo well worth the noting, whereof ſome are *flat* or *under-pitched*, as the *Roof* of the great *Hall* at *Chriſt-Church-College*, and the *Roofs* of the *Chappels* and *Halls* at *Magdalen-College* and *New-College*; others *due proportioned*, or *over-pitched*, ſuch as at *Jeſus*, *Wadham*, *Corpus-Chriſti*, *Exeter*, and *Oriel Colleges*; which yet having nothing extraordinary either in their Contrivance or Workmanſhip, I paſs them by, and proceed next,

154. To ſome remarkable Pieces of *Paintings* that we have here at *Oxon*; amongſt which (to omit the *Deformation* of a *Cæſar*'s Head to be ſeen in the *Schools*, brought into Shape by a *metalline Cylinder*, and ſeveral others of the kind at Sir *John Cope*'s; and that *Painting* it ſelf was firſt brought into *England* by Venerable *Bede* of this *Univerſity* [1]) I take the *Painting* of the *Theater* to be well worth Examination: for in Imitation of the *Theaters* of the ancient *Greeks* and *Romans*, which were too large to be covered with *Lead* or *Tile*, ſo this by the *painting* of the *flat Roof* within, is repreſented open: and as they ſtretched a *Cordage* from *Pilaſter* to *Pilaſter*, upon which they ſtrained a Covering of Cloth, to protect the People from the Injuries of the Weather, ſo here is a *Cord-molding* Guilded, that reaches croſs and croſs the *Houſe* both in length and bredth, which ſupporteth a great reddiſh *Drapery*, ſuppoſed to have covered the *Roof*, but now furl'd up by the *Genii* round about the Houſe toward the Walls, which diſcovereth the open *Air*, and maketh way for the Deſcent of the *Arts* and *Sciences*, that are congregated in a Circle of Clouds, to whoſe *aſſembly Truth* deſcends, as being ſollicited, and implored by them all.

155. For Joy of this *Feſtival* ſome other *Genii* ſport about the Clouds, with their *Feſtoons* of *Flowers* and *Lawrels*, and prepare their *Garlands* of *Lawrels* and *Roſes*, viz. *Honour* and *Pleaſure* for the great *Lovers* and *Students* of thoſe *Arts*: and that this *Aſſembly* might be perfectly happy, their great *Enemies* and Diſturbers, *Envy*, *Rapine*, and *Brutality*, are by the *Genii* of their oppoſite *Virtues*,

[1] *Vid. Comment. in Carmen. Phaleucium*, Joh. Seldeni, *before* Hopton's *Concordance of Years.*

viz.

viz. *Prudence*, *Fortitude*, and *Eloquence*, driven from the *Society*, and thrown down Head-long from the Clouds: The Report of the *Aſſembly* of the one, and the Expulſion of the other, being proclaimed through the open and ſerene *Air*, by ſome other of the *Genii*, who blowing their *Antick* Trumpets divide themſelves into the ſeveral *Quarters* of the World. Hitherto in groſs.

156. More particularly the *Circle* of *Figures* conſiſts firſt of *Theology*, with her Book with *Seven Seals*, imploring the aſſiſtance of *Truth*, for the unfolding of it. On her left hand is the *Moſaical Law* vailed, with the Tables of Stone, to which ſhe points with her *Iron Rod*. On her right-hand is the *Goſpel*, with the *Croſs* in one hand, and a *Chalice* in the other. In the ſame diviſion over the *Moſaical Law* is *Hiſtory*, holding up her *Pen* as dedicating it to *Truth*, and an attending *Genius* with ſeveral *Fragments* of old Writing, from which ſhe collects her *Hiſtory* into her Book: On the other ſide, near the *Goſpel*, is *Divine Poeſy*, with her *Harp* of *David*'s faſhion.

157. In the *Triangle* on the right hand of the *Goſpel*, is alſo *Logick* in a poſture of *Arguing*; and in *another* on the left-hand of the *Moſaical Law*, is *Muſick* with her *Antick Lyre*, having a *Pen* in her hand, and Paper of *Muſick Notes* on her knee, with a *Genius* on her right-hand (a little within the partition of *Theology*) playing on a *Flute*, being the *Emblem* of the moſt ancient *Muſick*; and on the left (but within the partition for *Phyſick*) *Dramatick Poeſy*, with a *Vizor* repreſenting *Comedy*, a *Bloody Dagger* for *Tragedy*, and the *Reed Pipe* for *Paſtoral*.

158. In the *Square* on the right ſide of the *Circle*, is *Law*, with her ruling *Scepter*, accompanied with *Records*, *Pattents*, and *Evidences* on the one ſide; and on the other with *Rhetorick*: by theſe is an attending *Genius* with the *Scales* of *Juſtice*; and a *Figure* with a *Palm-branch*, the *Emblem* of Reward for *Virtuous Actions*; and the *Roman Faſces*, the marks of *Power* and *Puniſhment*. *Printing*, with a *Caſe* of *Letters* in one hand, and a *Form* ready ſet in the other, and by her ſeveral *Sheets* hanging as a drying.

159. On the left ſide the *Circle* oppoſite to *Law*, is *Phyſick*, holding the *Knotty Staff* of *Eſculapius*, with a *Serpent* winding about it: The *Botaniſt* imploring the aſſiſtance of Truth, in the right underſtanding of the nature of her *Plants*: *Chymiſtry*, with a *Retort* in her hands: and *Chyrurgery*

gery preparing her ſelf to finiſh the *Diſſecting* of a Head, which hath the *Brain* already opened, and held before her by one of the *Genii*.

160. On the other ſide of the *Circle* oppoſite to *Theology*, in three *Squares* are the *Mathematical Sciences* (depending on *Demonſtration*, as the other on *Faith*) in the firſt of which is *Aſtronomy* with the *Celeſtial Globe*, *Geography* with the *Terreſtrial*, together with three attending *Genii*; having *Arithmetick* in the *Square* on one Hand, with a Paper of *Figures*; *Optick* with the *Perſpective-Glaſs*; *Geometry* with a pair of *Compaſſes* in her left, and a Table with *Geometrical Figures* in it, in her right Hand: And in the *Square* on the other Hand, *Architecture* embracing the *Capitel* of a *Column*, with *Compaſſes*, and the *Norma* or Square lying by Her: and a *Workman* holding another *Square* in one Hand, and a *Plumb-line* in the other.

161. In the midſt of theſe *Squares* and *Triangles* (as deſcending from above) is the Figure of *Truth* ſitting on a *Cloud*, in one Hand holding a *Palm-branch* (the *Emblem* of *Victory*) in the other the *Sun*, whoſe brightneſs enlightens the whole *Circle* of *Figures*, and is ſo bright, that it ſeems to hide the Face of *Her ſelf* to the *Spectators* below.

162. Over the *entrance* of the Front of the *Theater* are three *Figures* tumbling down; firſt *Envy* with Her *Snaky Hairs*, *Squint Eyes*, *Hags Breaſts*, *pale and venomous Complection*, *ſtrong but ugly Limbs*, and *rivel'd Skin*, frighted from above by the ſight of the ſhield of *Pallas*, with the *Gorgon*'s Head in it, againſt which ſhe oppoſes Her *Snaky Treſſes*, but Her fall is ſo precipitous, that ſhe has no command of Her *Arms*.

163. Then *Rapine* with her *fiery Eyes*, *grinning Teeth*, *ſharp Twangs*, her Hands imbrewed in *Blood*, holding a *Bloody Dagger* in one hand, in the other a *Burning Flambeau*, with theſe *Inſtruments* threatning the deſtruction of *Learning*, and all its *Habitations*, but is overcome, and ſo prevented by an *Herculean Genius*, or *Power*. Next that is repreſented brutiſh ſcoffing *Ignorance*, endeavouring to vilify and contemn what ſhe underſtands not, which is charmed by a *Mercurial Genius* with his *Caduceus*. Which is the ſum of what is deſigned by the *Painting* of the *Theater*, for the moſt part thus deſcribed by *William Soper* M. A. formerly of *Wadham College*, after of *Hart-Hall*, only with ſome few additions and neceſſary alterations.

164. Beſide the *Painting* of the *Theater*, there are other

fine pieces perhaps as well worthy notice, ſuch are the *Reſurrections* at *Magdalene* and *All-Souls Colleges*, both of *Fuller*'s work; though the latter indeed be ſomewhat defaced. The written *Picture* of his Majeſty King *Charles* the Firſt, in St. *John*'s *College* Library, taking up the whole Book of *Pſalms* in the *Engliſh* Tongue; and the written Picture of King *James*, and the *Arms* of *England* (as now born) taking up the whole Book of *Pſalms* in the *Latine*, in the hands of Mr. *Moorhead* Rector of *Bucknel*, are pretty *Curioſities*, and much admired.

165. And ſo is the *Cat* painted over one of the *Compartments* including the *Arms* of the *Univerſity*, in the South ſide of the *Gallery* at the *Schools*, for her looking directly upon all her *Beholders*, on what ſide ſoever they place themſelves; which common, yet ſurprizing Effect of the *Painter*'s Art, is cauſed, ſays the Ingenious *Honoratus Faber* [m], in all *Pictures* whatever of this Nature, by their turning the *Noſe* to one ſide, and the *Eyes* to the other; whence it comes to paſs that ſuch *Pictures* ſeem to look to the right ſide, becauſe indeed the *Eyes* are turned that way; and to the left in like manner, becauſe the point of the *Noſe* is turned to the left: where by the way he alſo notes, that 'tis neceſſary that all ſuch *Pictures* be drawn on *flat Tables*, ſo that the *Beholder* perceive not that the *Eyes* of the *Picture* are turned contrary to the *Noſe*; which he muſt needs do, if the *Eyes* of the Portraict were *Convex*, concluding, that no *Figure* can be made in *Relievo* thus to look every way.

166. To this place alſo belongs the *Invention* of drawing *Pictures* by *Microſcopical Glaſſes*, by Sir *Chriſtopher Wren* [n], and the *Invention* of Mr. *Bird* lately Stone-Cutter or Carver of *Oxford*, of ſinking a *Colour* a conſiderable depth into the Body of Poliſh'd *White Marble*, by application of it to the out-ſide only, ſo that the ſame *Figure* delineated without, ſhall be as perfectly repreſented within, deeper or ſhallower, according as he continues his application to the Surface a longer or ſhorter while [o]. And if we may take in *Etching*, which is *painting* in Copper, there is a very curious and ſpeedy way alſo *Invented*, by the ſo often mentioned Sir *Chriſtopher Wren* [p]. And which borders ſtill on theſe, in the *Statuarie*'s Trade, we can ſhew two excellent *Pieces* of *Art*, in the *Statues* of Braſs of King *Charles* the Firſt, and

[m] *Honorati Fabri Tract. de Homine, Lib. 2. Prop. 93. ſub finem.* [n] Hiſtory of the Royal Society, *Part. 2. ſub finem.* [o] Philoſoph. Tranſact. *Numb.* 7. [p] Hiſt. of the Royal Society, *Part. 2. ſub finem.*

his

his Queen *Henrietta*, placed in the *Niches* over the Gates of the new *Quadrangle* in St. *John Baptiſt College Oxon.*

167. In ſome other Trades yet Inferior to theſe, there have been made alſo conſiderable *Inventions* and *Improvements*, ſuch as that of Weaving *Silk Stockings*, firſt Invented by one Mr. *William Lee*, M. A. of this *Univerſity*, who being Married and Poor, and obſerving how much pains his *Wife* took in knitting a pair of *Stockings*, put himſelf on thinking on a nearer way: whereupon having obſerved the contrivance of the *Stitches* by unravelling a *Stocking*, he deſigned a *Loom* accordingly, which ſucceeded ſo well, that (with but ſmall Alteration) it remains the ſame to this very Day.

168. And 'tis confidently vouched, that the *Engine* for cutting of *Handles* of *Knives*, we commonly buy cut into thoſe various *Figures*, was firſt *Invented* and Practiced here in *Oxford*, by *Thomas Pierce* a Cutler, whoſe *Apprentice* did Practice the ſame *Art* in *London:* But not with ſo much accuracy as *Robert Alder* another Cutler of *Oxford*, who only by obſervance of the other's Work, and long Study, at laſt found it out alſo, and hath Improved it much: Which two laſt, as I was informed, were then the only two *Perſons* that could do this in *England*, perhaps I may ſay in the *World*. Nor can I paſs by the Invention in the *Cooper's* Trade, of making *Barrels* without Hoops, whereof I found a *Specimen* in St. *Ebb*'s Pariſh *Oxon.* though I know the *Invention* belongs to another place, of which more when I come thither.

169. For *Improvements*, 'tis certain that the *Blanketing Trade* of *Witney* is advanced to that height, that no *place* comes near it; ſome I know attribute a great part of the excellency of theſe *Blankets* to the *abſterſive nitrous Water* of the River *Windruſh*, wherewith they are Scoured, as was mentioned before, *Ch.* 2. §. 12. but others there are again that rather think they owe it to a peculiar way of *looſe Spinning* the *People* have hereabout, perhaps they may both concurr to it: However it be, 'tis plain they are eſteemed ſo far beyond all *others*, that this place has engroſſed the whole *Trade* of the *Nation* for this *Commodity;* in ſo much that the *Wool* fit for their uſe, which is chiefly *fell Wool* (off from *Sheep-skins*) Centers here from ſome of the furthermoſt parts of the *Kingdom*, viz. from *Rumney-marſh*, *Canterbury*, *Colcheſter*, *Norwich*, *Exeter*, *Leiceſter*, *Northampton*, *Coventry*, *Huntington*, &c. of which the *Blanketers*,

whereof there are at leaſt Threeſcore in this *Town*, that amongſt them have at leaſt 150 *Looms*, employing 3000 poor People, from *Children* of eight Years old, to decrepit *old Age*, do work out above a hundred Packs of *Wool* per Week.

170. This *Fell-wool* they ſeparate into five or ſix Sorts, *viz. Long-fell-wool, Head-wool, Bay-wool, Ordinary, Middle*, and *Tail-wool: Long-fell-wool* they ſend to *Wells, Taunton, Tiverton*, &c. for making *worſted Stockings;* of *Head-wool* and *Bay-wool*, they make the *Blankets* of 12, 11, and 10 *Quarters* broad, and ſometimes ſend it, if it bear a good Price, to *Kederminſter* for making their Stuffs, and to *Eveſham, Parſhore*, &c. for making *Yarn-ſtockings;* or into *Eſſex* for making *Bays*, whence one ſort of them I ſuppoſe is called *Bay-wool:* of the ordinary and middle they make *Blankets* of 8 and 7 *Quarters* broad; and of theſe mixt with the courſer *Locks* of *Fleece-wool*, a ſort of Stuff they call *Duffields* (which if finer than ordinary, they make too of *Fleece-wool*) of which *Duffields* and *Blankets* conſiſts the chief Trade of *Witney*.

171. Theſe *Duffields*, ſo called from a Town in *Brabant*, where the *Trade* of them firſt began (whence it came to *Colcheſter, Braintry*, &c. and ſo to *Witney*) otherwiſe called *Shags*, and by the *Merchants, Trucking-cloth;* they make in *pieces* about 30 Yards long, and one Yard $\frac{3}{4}$ broad, and dye them *Red* or *Blue*, which are the *Colours* that beſt pleaſe the *Indians* of *Virginia* and *New-England*, with whom the *Merchants* truck them for *Bever*, and other *Furrs* of ſeveral Beaſts, *&c.* the uſe they have for them is to apparel themſelves with them, their manner being to tear them into *Gowns* of about two Yards long, thruſting their *Arms* through two Holes made for that Purpoſe, and ſo wrapping the reſt about them as we our *Looſe-coats*. Our *Merchants* have abuſed them for many Years with ſo falſe Colours, that they will not hold their Gloſs above a *Months* Wear; but there is an ingenious *Perſon* of *Witney* that has improved them much of late, by fixing upon them a true *Blue Dye*, having an *Eye* of *Red*, whereof as ſoon as the *Indians* ſhall be made ſenſible, and the diſturbances now amongſt them over, no doubt the *Trade* in thoſe will be much advanced again.

172. Of their beſt *Tail-wool* they make the *Blankets* of 6 Quarters broad, commonly called *Cuts*, which ſerve Seamen for their *Hammocs;* and of their worſt they make

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Wednel for *Collar-makers*, *Wrappers* to pack their *Blankets* in, and *Tilt-cloths* for *Barge-men*. They ſend all their ſorts of *Duffields* and *Blankets* weekly in *Waggons* up to *London*, which return laden with *Fell-wool* from *Leaden-hall*, and *Barnaby-ſtreet* in *Southwark*, whether 'tis brought for this Purpoſe from moſt Places above-mentioned; *Oxford-ſhire* and the adjacent *Counties* being not able to ſupply them.

173. There are alſo in this Town a great many *Fell-mongers*, out of whom at the neighbouring Town of *Bampton*, there ariſes another conſiderable *Trade*, the *Fell-monger*'s *Sheep-skins*, after *dreſſed* and *ſtained*, being here made into *Wares*, viz. *Jackets*, *Breeches*, *Leather-linings*, &c. which they chiefly vent into *Berk-ſhire*, *Wilt-ſhire*, and *Dorſet-ſhire*, no *Town* in *England* having a *Trade* like it in that ſort of *Ware*.

174. Which two Trades of the Towns of *Witney* and *Bampton*, are the moſt *eminent*, that are too, the moſt *peculiar* of this *County*. The *Maulting Trade* of *Oxford* and *Henly* on *Thames*, 'tis true are conſiderable, and *Burford* has been famous time out of mind for the making of *Saddles*; and ſo has *Oxford* had the Reputation of the beſt *Gloves* and *Knives*, of any place in *England*; but theſe *Trades* being not peculiar to the places where they are practiſed, I therefore paſs them by without further Notice.

175. But the *Starch Trade* of *Oxford*, though indeed it be not great, yet being practiced in few places, and the *Method* known to fewer how it is made, its Diſcovery perhaps may be acceptable to ſome, I ſhall not therefore ſtick to give a ſhort Account of it. Let them know therefore, that the Subſtance we commonly call *Starch*, notwithſtanding its pure *Whiteneſs*, is made of the ſhorteſt and worſt *Bran* that they make in the *Meal-ſhops*, worſe than that they ſell to *Carriers* to feed their *Horſes*; This they ſteep in a *Water* prepared for that Purpoſe (by a Solution at firſt of *Roch-Alum*, about a Pound to a *Hogs-head*, which will laſt for ever after) for ten or fourteen Days in great *Tubs*; then 'tis taken and *waſhed* through a large *Oſier Basket* over three other *Tubs*, the *ſower Water* of the *ſecond Tub* waſhing it into the *firſt*; and the *ſower Water* of the *third*, into the *ſecond*; and clear Water from the *Pump* waſhing it into the *third*.

176. Where

176. Where by the way it muſt be noted, that only *Pump Water* will ſerve the turn to give it this laſt *Waſhing*, and continue the waters *Sowerneſs* for ever after, by reaſon I ſuppoſe of the inciſive particles of *Salt* to be found in moſt *Pump Waters* (which are plain from their not taking *Soap*) that are apt to work upon and ſeparate the fineſt *Flower* yet ſticking to the *Bran* (notwithſtanding the *Mill* and *Sieve*) which at laſt becomes *Starch*.

177. What remains in the *Basket* at laſt after the three *Waſhings*, is thrown upon the dung-hill, which, as they have found of late, becomes a very good *Manure* for *Meddow Land*, and ſhould therefore have been mentioned in the 70 §. of this *Chapter*, amongſt the *uncommon Manures*. And the fine *Flower* thus waſhed from the *Bran*, is let ſtand again in its own *Water* for about a week, then being all ſetled at the bottom, it is ſtirred up again and freſh *Pump-water* added, and ſtrained from its ſmalleſt *Bran* through a *Lawn-ſieve*; which done, they permit it to ſettle again, which it does in one Day, and then they draw off the *Water* from it all to a ſmall Matter: then ſtanding two Days more, it at laſt becomes ſo fixt, that with a *birchen Broom* they ſweep the Water, left at the Top, (which is a ſlimy kind of Matter) up and down upon it to cleanſe it from Filth, and then pouring it off, they waſh its Surface yet cleaner, by daſhing upon it a Bucket of fair *Pump-water*.

178. Which done, they then cut it out of the *Tubs* in great pieces with ſharp *Trowels*, and box it up in *Troughs*, having holes in the Bottom to drain the *Water* from it, always putting wet *Cloths* between the Wood and it, for the more commodious taking it out of the *Troughs* again to dry, which they do within a Day; laying it firſt on cold *Bricks* for about two Days, which ſuck away a great deal of *Moiſture* from it, and after over a *Baker*'s *Oven* four or five Days together, which will dry it ſufficiently, if intended only to be ground to *Powder* for *Hair*, as it is chiefly here; but if intended to be ſold as *Starch*, they then uſe a *Stove* to give it the *Starch-grain*, which the Oven will not do.

179. From the *Inferior*, I proceed to the *Superior Arts* and *Sciences*, and others *inſtrumental* to them, for in theſe too, there have been many *Inventions* and *Improvements* made in this *Univerſity*. In Enumeration whereof, if we begin ſo low as the very *Elements* of *Speech*, we ſhall find that the Reverend and Learned Dr. *Wallis*, late *Savilian*

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Profeſſor of *Geometry* here, firſt obſerved and diſcovered the *Phyſical* or *Mechanical* Formation of all *Sounds* in *Speech*, as plainly appears from his Treatiſe *de Loquela*, prefix'd to his *Grammar* for the *Engliſh* Tongue, firſt publiſh'd in the Year 1653.

180. In purſuance whereof, *he* alſo found out a way whereby he hath taught *dumb Perſons* (who were therefore *dumb* becauſe *deaf*) not only to underſtand what they *read*, and by *Writing* to expreſs their Minds, but alſo to *ſpeak* and *read* intelligibly, according to Directions for the artificial Poſition and Motion of the *Organs* of *Speech*, and thereby alſo aſſiſted others who have ſpoken very imperfectly. Of which no more, there being a particular Account given by *himſelf* in our *Engliſh Philoſophical Tranſactions* of *July* 18. 1670 [q].

181. I know that the Right Reverend Father in God, *John Wilkins*, late Lord Biſhop of *Cheſter*, hath alſo laid down the diſtinct manner of forming all *ſounds* in *Speech*, and ſhewed in *Sculpture* which *Letters* are *Labial*, *Lingual*, *Naſal*, &c. and how the *Epiglottis*, *Larynx*, *Aſpera Arteria*, and *Oeſophagus*, conduce to them. Since *him*, in the Year 1669, the Reverend and Ingenious *William Holder* D. D. publiſh'd and *Eſſay* of Inquiry into the Natural Production of *Letters*, together with an *Appendix* to inſtruct Perſons *Deaf* and *Dumb* [r]. Yet whether either of theſe, with advantage of what Dr. *Wallis* did before, have with more accuracy of judgment performed the ſame, I dare not by any means take upon me to determine.

182. The ſame Dr. *Wallis* hath alſo with great ſagacity, deciphered many things written in *Cyphers*, of very intricate and perplext contrivance, beyond what hath been known to have been done by any other, whereof there be *Examples* of many in a MS. *Book* of his, reſerved in the *Archives* of the *Bodleyan Library*.

183. Add hereunto the Ingenious *Invention* of a *Univerſal Character*, or *Philoſophical Language*, firſt contrived here at *Oxford* by Mr. *George Dalgarno* M.A. who in the Year 1656, endeavouring to improve the *Art* of *Short-hand* beyond what others had done, by expreſſing the *Auxiliary Particles* of the *Engliſh* Language, by diſtinct *Points* and *Places* about the *Radical* or *Integral* words, after the manner that 'tis done by *prefixes* and *ſuffixes* in the *Hebrew*; found at laſt that there was no way to diſtinguiſh the *affixed Points*

[q] Philoſoph. Tranſact. *Numb.* 61. [r] Philoſoph. Tranſact. *Numb.* 47.

which

which he intended to be uſed *really*, from thoſe uſed before in the common way of *Short-hand* (where not only the *Capital Character*, but *Points* about it where *Alphabetical*) but by making the *principal Character* it ſelf, to which they were to be acceſſary, not *Alphabetical* but *real*.

184. Thus having formed *Tables* both of *Integrals* and *Particles*, to be expreſſed by ſingle *Characters*, he perceived at length, that he was gone unawares further than ever he intended, having not only improved the *Art* of *Short-hand*, but alſo diſcovered a *real Character* equally applicable to all *Languages*: And after he had purſued the Deſign of a *dumb Character* a conſiderable time, at laſt he perceived that it would naturally reſolve it ſelf into a *Language*, having this Advantage over any *Character*, that we may uſe our known *Alphabet* to expreſs it, whereas in a *Character* the *Figures* muſt be new. At length having digeſted his whole Contrivance into a *Synopſis*, he communicated it to ſeveral *Learned Men*, whoſe Approbation and Certificates procured him good Encouragement; but he met with no *Man* that took ſo much Pains to underſtand the *Novelty*, or ſo Zealous to have it finiſhed and come abroad, as the the Reverend and Learned Dr. *John Wilkins* late Lord Biſhop of *Cheſter*, the then worthy Warden of *Wadham College*.

185. The laſt thing he attempted in his *Tables*, was the reducing the *Species* of Natural Bodies to the rules of *Art*, the reaſon of which delay, was becauſe he perceived that they occurred but ſeldom in common diſcourſe, and that there was but little *Grammatical* difficulty about them, though in number they much excelled all the other *ſimple notions*, which make the body of a *Language*: His judgment then being, and as far as I can perceive, ſtill remaining unſhaken, notwithſtanding what has been done ſince, that from a few *general words* allowed to be *radical*, the names of the *inferior ſpecies* ſhould be made off by *compoſition*, adding to the *general* and *radical* word, one, or ſometimes more ſuch *Words* taken from the Table of *Accidents* as might deſcribe the intended *Species*, and difference it from all *others*, and ſometimes alſo to allow *Periphraſes*.

186. And this *Inſtitution*, as he takes it to be grounded upon *Nature* and *Neceſſity*, as appears more or leſs in all *Languages*, ſo he thinks it approved by the higheſt *Examples* that ever *Art* was: For God Himſelf named the firſt *Man*, though a ſingle *Individual*, not by a word of

a *firſt*

a *firſt*, but *ſecond Inſtitution*; and *Adam*, as a perfect *Philoſopher*, imitating his *Maker*, named all living *Creatures*, not by Words of a *firſt Inſtitution*, antecedently Inſignificative, but by ſuch as by an *antecedent Inſtitution* might be apt to expreſs ſomething of their *Nature*, for otherwiſe the common Opinion of *Divines*, that *Adam* gave Names to the *Creatures* according to their *Natures*, would be abſurd.

187. Which *Inſtitution* he takes alſo to have this farther *Advantage*, that the Name of any ſingle *Species* may be known without obliging the Learner to carry in his Memory all the *predicamental Series* of its fellow *Species*; ſo that *Names* of common uſe may be known, paſſing by *others* that are not ſo, which to *Learners* is as great an Encouragment, as the obtruding things not neceſſary is a Diſcouragement to them. According to this *Inſtitution*, he publiſh'd a *Specimen* called *Ars Signorum*, in the Year 1660. containing but 500 *Radicals*, all the *Particles* being brought from the *Radicals* by which they are reſolved; every *Radical*, except the *genera intermedia* being *Monoſyllables*, and all things elſe being made off from *theſe* by *Compoſition*, which is allowed here in its fulleſt Latitude, *Quidlibet cum quolibet pro re nata*, provided the *ſimple Terms* loſe nor change nothing of Signification, by *Compoſition*.

188. But the Reverend and Learned Dr. *John Wilkins*, who throughly underſtood and commended his *Labours*, in the former part of the *Work*, thinking perhaps that this way of *Compoſition* would produce *too long* Words, or that the various *Conceptions* of *Men*, muſt needs cauſe different *Compoſitions* and *Deſcriptions* of the ſame *things*, and thence unavoidably bring Miſunderſtandings (which yet Mr. *Dalgarno* thought might be avoided by ſtating of *Notions* and a Collection of *Formula*'s) did not approve of this *Inſtitution*: declaring his Judgment to be, that all the *Species* of *natural Bodies* (according as he owns, was ſuggeſted to him by that moſt Learned and Excellent Perſon Dr. *Seth Ward*, late Biſhop of *Salisbury* *) ought to be provided for as *Radicals*, by a regular Enumeration of them according to the *Theories* of the *Schools*.

189. Nor did he approve of his Rejection of a *Character*, ſince a graceful one might be contrived more proper for *Brachygraphy*, and equally Convenient for many *Nations*,

* *Eſſay towards a real Character, in the Epiſtle to the Reader.*

with the common *Alphabet:* Nor for his bringing the *Particles* from the *Radicals* by which they are reſolved; judging perhaps their *Compoſition*, beſide the reducing ſome of them handſomely, more troubleſome than that, of Learning a *ſmall*, yet *ſufficient* number of them depoſed regularly in *Schemes*, and noted with ſmaller *Characters* than thoſe of *Integrals*. All which may be collected from the Learned *Eſſay* towards a real *Character*, or *Philoſophical Language*, put forth by that highly Ingenious Perſon, then Dean of *Rippon*, *An.* 1668.

190. In which, though 'tis true the number of *Radicals* are near 3000, yet are they ſo ordered by the Help of a *natural Method*, that they may be more eaſily learned and remember'd than 1000 Words otherwiſe diſpoſed of, upon which account they may be reckoned but as 1000. For the *Signa* (they are ſo methodically contrived) they may be all learned in leſs than Hour, were they twice as many; the Difficulty therefore muſt be in the *ſignata*, but theſe being drawn up in *Schemes*, ſo that one Notion will clearly depend upon another, they ſeem to be a perfect *artificial Memory*, rather than require any Help to be remember'd. Notwithſtanding it leaves a large Scope, enough for *Derivation* and *Compoſition*, as may be ſeen by the *Tables*, where ſeveral Words, though no *Synonyma*'s to it, may be made off from a *Primitive*, as *Queen*, *Crown*, *Scepter*, *Throne*, from the *Radical* [*King;*] and ſo from the *Primitive*, [*Sheep*] are made off, *Ram*, *Ewe*, *Lamb*, *Wether*, *Mutton*, *Bleat*, *Fold*, *Flock*, *Shepherd*, &c. which Compoſitions are clear, though the greateſt Difficulty of the *Language* conſiſts in theſe.

191. Yet I ſhall not offer to determine which of theſe is to be preferr'd, leaving that wholly to the *Reader*'s Judgment, who may conſult both *Treatiſes:* It being ſufficient for me, that an *Univerſal Character* and *Philoſophical Language* can be no more reckoned amongſt the *Deſiderata* of Learning, and that the Defect was ſupply'd here at *Oxford;* the Contrivances of *both* being firſt founded *here*, and both grounded upon rational and ſolid Principles, with greater Advantages of Facility, than can be believed poſſible to any that have not made Trial. And this is all concerning *Letters* and *Language*, but that *John Baſinſtoke*, alſo an *Oxford* Man, *Figuras Græcorum numerales in Angliam portavit, & earum notitiam ſuis familiaribus ſignificavit, de quibus figuris hoc maxime admirandum, quod unica figura*

qui-

quilibet numerus ſignificatur, quod non eſt in Latino vel in Algoriſmo [f].

192. In *Logick* the ſubtile *Johannes Duns Scotus*, formerly Fellow of *Merton-College*, was the *Father* of the Sect of the *Reals*; and his Scholar [t] *Gulielmus Occham*, ſometimes falſly printed *Holran*, of the ſame *Houſe*, Father of the Sect of the *Nominals*, betwixt whom as the Story goes, there falling out a hot Diſpute (*Scotus* being then *Dean* of the *College*, and *Occham* a *Bachelor-Fellow*) wherein though the *latter* is ſaid to have obtained the better, yet being but an *Inferior*, at Parting ſubmitted himſelf with the reſt of the *Bachelors* to the *Dean* in this Form, *Domine quid faciemus*, as it were begging Puniſhment for their Boldneſs in *arguing*; to whom *Scotus* return'd this Anſwer, *Ite, & facite quid vultis.* They forthwith brake open the *Buttery* and *Kitchin Doors*, taking all they could meet with, making Merry with it all Night: Which, 'tis ſaid, gave Occaſion to their obſerving the ſame *Diverſion* to this very Day, whenever the *Dean* keeps the *Bachelors* at *Diſputations* till Twelve at Night, which they now commonly call a *black Night.*

193. *Rogerus Swiſſet*, alias *Swinſhead*, of the ſame *College*, was the firſt Contriver of the *Art Calculatory* in *Diſputation*, wherein ſays the Learned *Selden*, *Multiplicatis particulis negativis & trajectis per eſſe, & non eſſe Calculo* (which was *Beans* and *Peaſe*) *opus erat, quoties erat diſputandum* *. But others who have conſulted more of his *Works* than I ſuppoſe Mr. *Selden* ever did, rather think this *Art Calculatory*, to be ſome way that he had to determine the *Proportions* of Matters capable of *Proportion* or *Degrees*, ſuch as *Action*, *Motion*, *Reaction*, *Intenſion*, *Remiſſion*, *&c.* whereof the *Reader*, if he think it worth while, may further ſatisfy *himſelf* from his printed Works; ſuch as his *Introductorium in Calculationem*, his *Calculationes cum Quæſt. de Reactione*, his Treatiſes *de Intentione & Remiſſione, maximo & minimo*; to which add, *M. Baſſani Politi, Introductorium in Calculationes Swiſſet*, moſt of which, if not all, are in *Merton-College* Library.

194. The ſame *Roger Swiſſet* found out many things in *Mathematicks*, which no body found before him, *& perpauci poſt eum jam Inventa comprehendere valuerunt*, ſays *Pit-*

[f] Matth. Paris, *Hiſt. Angl. in Anno* 1252. *pag.* 835. *Edit.* Watſiana. [t] *Vid.* Johannis Lelandi *Collectanea de viris Illuſtribus.* * *Vid Comment. in Carmen Phaleuciam*, Joh. Seldeni, *before* Hopton's *Concordance of Years.*

ſeus of him [u]. And the Honourable *Robert Dudley* formerly of *Chriſt Church College Oxon* (made *Duke* by the *Emperor* [w], with the Title of *Northumberland* here in *England*, whereof he fancy'd himſelf wrongfully deprived) contrived many *Engines* and *Mathematical Inſtruments* not known before, now in the poſſeſſion of the *Great Duke* of *Tuſcany*, to whoſe *Anceſtors* he apply'd himſelf in his Diſcontent, by whom he was ſuccour'd and highly valued for his great *Learning*, and with *whom* his *Children* did remain in *Wealth* and *Honour*, and retained Titles of *Dukes* of *Northumberland* and *Earls* of *Warwick* and *Leiceſter*; which Titles others ſay, and perhaps more rightly too, were conferred on them by the *Pope*, in whoſe Quarrel they were pretended at leaſt to have been loſt [x].

195. Of later Years the highly Ingenious Sir *Chriſtopher Wren*, in the Year 1668, firſt found out a *ſtraight Line* equal to a *Cycloid* and the parts thereof, as is clearly made appear in his behalf by the Right Honourable and Learned, the Lord Viſcount *Brouncker*, formerly Chancellor to Her Majeſty, and *Preſident* of the *Royal Society*; and the Reverend and Learned Dr. *John Wallis* [y]. The ſame Right Worſhipful and very learned Perſon, Sir *Chriſtopher Wren*, found out alſo ſeveral new *Geometrical Bodies*, that ariſe by the application of two *Cylinders* and one *Lenticular Body*, fit for Grinding one another; by whoſe mutual *attrition* will neceſſarily be produced a *Conoides Hyperbolicum*, and two *Cylindroidea Hyperbolica*: The *Engine* whereby this may be done being repreſented in *Sculpture* in our *Philoſophical Tranſactions*, and deſigned for Grinding *Hyperbolical Glaſſes* [z]. He alſo firſt obſerved that a *plain ſtraight edged Chiſel*, ſet any way obliquely to a *Cylinder* of Wood, did neceſſarily turn it into a *Cylindroides Hyperbolicum Convexo-concavum*, the ſeveral *Sections* whereof are accurately demonſtrated by the Reverend and Learned Dr. *John Wallis* our Engliſh *Archimedes* [a].

196. The ſame Dr. *John Wallis* late *Savilian* Profeſſor of *Geometry* in this *Univerſity*, in the Year 1656, publiſh'd his new *method* called *Arithmetick* of *Infinites*, for the more expedite and effectual enquiry into the *Quadrature* of *Curvilinear* Figures, or other difficult *Problems* in *Geometry*;

[u] *Vid.* Pitſei *Relat. Hiſt. de rebus Angl. præſertim de Script. in An.* 1350. [w] *Hiſt. & Antiquitates Univerſitatis* Oxon. *per* Antonium à Wood, *lib.* 2. *pag.* 275. [x] *Ex Itinerario* Joh. Bargrave *S. T. P. & Præbend. Eccleſiæ Chriſti Cant.* MS. *penes ſeipſum.* [y] Philoſoph. Tranſact. *Numb.* 98. [z] *Ibid. Numb.* 53. [a] Walliſii *Mechanica, ſive de Motu, part.* 2 *de Calculo Centri gravitatis, cap.* 5. *Prop.* 32.

and

and therein, amongſt other things (at the *Scholium* of his 38 *Propoſition*) ſhew'd the way of comparing *Straight* and *Crooked* Lines, which gave occaſion to Mr. *William Neil* (in purſuance thereof) in the Year 1657, to find out (the firſt of any Man) a *Straight* Line equal to a *Curve*, of which we have an account in the *Philoſophical Tranſactions* of *Novemb.* 17. 1673 [b].

197. The ſame Reverend and Learned Dr. *John Wallis*, amongſt his other numerous and new Performances in *Arithmetick* and *Geometry*, firſt demonſtrated the impoſſibility of Squaring the *Circle Arithmetically*, according to any way of *Notation* yet generally received [c], and what kind of new *Notation* muſt be introduced to expreſs it, with divers *methods* of *Squaring* the *Circle*, *Ellipſis* and *Hyperbole*, ſo far as the nature of *Numbers* will bear, having apply'd his *method* of *Infinites* in order thereunto; as alſo for rectifying of *Curve-lines*, plaining of *Curve-ſurfaces*, ſquaring of inumerable ſorts of *Curve-lined* figures, plain and ſolid (amongſt which are a multitude of *Figures* of *Infinite* length, but *Finite* content) determining their *Centers* of *Gravity*, and other *Accidents*.

198. He has alſo adjuſted the ſtrength of *Percuſſions* and *Reflexions* (or *Repercuſſions*) and other motions to *Geometrical* meaſures, deduced from principles of *Elaſticity*; and has eſtimated the *Artificial* force acquired in all ſorts of *Mechanick Engines*, deduced from our common principle of the *Reciprocation* of *ſtrength* and *time*; with many other improvements of *Arithmetick*, *Algebra*, *Geometry*, *Mechanicks*, and other parts of *Mathematicks*, in his *Arithmetick* of *Infinites*, his Treatiſe of the *Cycloid*, with that adjoyned of the *Rectification* of *Curves*; his Treatiſe of *Motion*, and other his Printed *Works*.

199. In *Muſick* (which is *Arithmetick* adorned with *ſounds*) to paſs by a *Harpſechord* that I met with at Sir *Fairmedow Penyſton*'s with *Cats-gut* ſtrings: It hath been lately obſerved here at *Oxford*, that though *Viol* or *Lute* ſtrings rightly tuned do affect one another, yet moſt of them do it not in all places alike, as has till now been ſuppoſed: for if the leſſer of two *Octaves* be touched with the Hand or Bow, each half of the greater will anſwer it, but will ſtand ſtill in the *Middle*; and if the *Greater* of two *Octaves* be touched on either of its *Halves*, all the *leſſer* will anſwer it, but if touched on the *middle*, the *leſſer* will not ſtir any where at all.

[b] Philoſ. Tranſ. *Num.* 98. [c] *Vid. Arith. Infinitorum, Prop.* 190. *cum Scholio ſequ.*

fetches, 'twill beget a *ſound* ſo much the more *acute*, as its *Vibrations* (are ſhorter, and thereby) come thicker and oftner; *i. e.* of double the *Acuteneſs*, or an upper *Octave* to *CD* 2 to 1 *Vibration*.

Caſ. 3. Let *AB=CD*, *Tab.* 15. *Fig.* 2. have a greater *Size* and the ſame *Tenſion*, it will with the ſame *force*, *vibrate* to the ſame *diſtance EG=IK* (*per præm.* 3.) but in a longer *time* proportionably (*per præm.* 2.) as, if it be double in *Diameter* (and ſo in *Circumference*, i. e. *quadruple* in *Bulk*) in twice the *time*; ſtriking a *Note* ſo much the more *Grave*, as its *Vibrations* return ſlower and ſeldomer, and are thereby fewer, *i. e.* twice as *Grave*, or an under *Octave* to *CD*, 1 to 2 *Vibrations*.

Caſ. 4. Let *AB=CD*, *Fig.* 2. have as much greater a *Size* as *Tenſion*, it will, with an equal *Force*, *vibrate* to a leſs *Diſtance* proportionably; as if double the *Size* and *Tenſion*, to half the *Diſtance EF=½EG* or *IK* in the ſame *time* (*per Caſ.* 2. & 3.) and ſo keeping Touch in their *Vibrations*, they will ſtrike *Uniſons* 1 to 1 *Vibration*.

Caſ. 5. Let *AB=CD*, *Fig.* 2. have as much greater *Size* as leſs *Tenſion*, 'twill with the ſame Force *vibrate* to a greater *Diſtance* proportionably, in a time greater in a duplicate *Proportion*; as if double the *Size*, and but half the *Tenſion*, to double the *Diſtance EH=2 EG* or *IK*, in quadruple the *time* (*per Caſ.* 2. & 3.) and ſo will ſtrike an under *Diſdiapaſon* or 15*th* to *CD*, 1 to 4 *Vibrations*; as on the contrary *CD* to *AB* an *upper*, 4 to 1 *Vibr.*

Where by the way *he* gives Notice, that when *he* ſpeaks of *Strings* (of a different *Size*) being moved by the ſame or an equal *Force*, which is alſo to be underſtood in all the following *Caſes* where not expreſt, that he means it that way their *Gravity* does propend, *viz.* downward in thoſe that are *Horizontally* ſtreined, leſt their proper *Gravity* might be thought to cauſe a difference.

203. Thus having abſolved his *firſt Hypotheſis* concerning *Strings* of equal *length*, he proceeds to his *ſecond*, and ſhews that if *AB* and *CD*, *Fig.* 3. be unequal in *length*, as in moſt *Lute-ſtrings*, what *Vibrations* and *Sounds* they will produce, according to their different *Sizes* and *Tenſion* alſo in the following *Caſes*.

Caſ. 1.

Caſ. 1. Let *AB*> (*i. e.* be longer than) *CD*, *Tab.* 15. *Fig.* 3. have the ſame *Size* and *Tenſion*, it will with an equal *Force*, *Vibrate* proportionably to a greater *diſtance*, (*per præm.* 4.) in a greater time; (*per præm.* 1.) as if twice as *long* to double the *diſtance*, *LN*=2 *LM*: For ∠*AL*. *LN*::∠*L*. *LM*. (& ∠*AN*. ∠*M*::∠*NL*. *ML*. [*per* 4. 6. *Euc.*] *ergo* ∠*Arch*. ∠*AN*=*Arc*. *CMD*) and that in twice the time; ſtriking the *Air* into an *Arch* of a *Circle* of double the *Radius*; by which doubly ſlower return of its *Vibrations*, 'twill produce a ſound twice as *Grave*, or an *under Octave* to *CD*. 1 to 2 *Vibrations*.

Caſ. 2. Let *AB*>*CD* *Fig.* 3. have the ſame *Size*, and a *Tenſion* as much *greater* as 'tis *longer*, 'twill with an equal *Force*, *Vibrate* to the ſame *diſtance LM* (*per præm.* 4. *vel per Caſ.* 1. *Hyp.* 2. & *Caſ.* 2. *Hyp.* 1.) in the ſame time (*per præm.* 1.) ſtriking the ∠*Air* (with alike briskneſs) into an ∠*Arch* of a *Circle*, ſo much greater proportionably, as *CD* is the *Chord* of fewer *degrees*, and ſo will produce alike ſounds or *Uniſons*. 1 to 1 *Vibration*.

Caſ. 3. Let *AB*>*CD*, *Fig.* 3. have the ſame *Size*, and a *Tenſion* as much *leſs*, as 'tis *longer*; 'twill *Vibrate* to a *diſtance*, and in a *time* greater in a duplicate *proportion* (*per præm.* 4. & 1. *vel per Caſ.* 1. *Hyp.* 2. & *Caſ.* 2. *Hyp.* 1.) as, if being double, it has but half the *Tenſion* to quadruple the *diſtance LO*=4 *LM* in quadruple the *time*, and ſo will produce a ſound 4 times as *Grave*, or an under *Diſdiapaſon* to *CD*. 1 to 4 *Vibr*.

Caſ. 4. Let ∠*AB*>*CD*, *Tab.* 15. *Fig.* 4. have a *Size* as much *greater* as 'tis *longer*, and the ſame *Tenſion*; 'twill *Vibrate* to a *greater diſtance* proportionably (*per præm.* 4. *vel per Caſ.* 1. *Hyp.* 2.) in a *time* greater in a *duplicate proportion* (*per præm.* 2. *vel per Caſ.* 3. *Hyp.* 1.) as if double in *length* and *Size*, to double the *diſtance PR*=2 *PQ* in quadruple the *time*; and ſo will ſtrike an under *Diſdiapaſon* or 15th to *CD*. 1 to 4 *Vibr*.

Caſ. 5. Let *AB*>*CD*, *Tab.* 15. *Fig.* 5. have a *Size* as much *leſs* as 'tis *longer*, and the ſame *Tenſion*; 'twill with the ſame *force*, *vibrate* to a greater *diſtance* proportionably (*per præm.* 4. *vel Caſ.* 1. *Hyp.* 2.) as if twice as long to double the *diſtance TX*=2*TV*, in the ſame *time* (*per præm.* 2.) and ſo keeping pace in their *Vibrations* will ſtrike *Uniſons*, 1 to 1 *Vibr*.

Caſ. 6. Let $AB > CD$, *Fig.* 4. have both *Size* and *Tenſion* as much *greater* as 'tis *longer*, 'twill *vibrate* to the ſame *diſtance* PQ. (*per præm.* 4. *vel Caſ.* 2. *Hyp.* 2.) in a longer *time* proportionably greater (*per præm.* 2.) as if double the *Size*, in twice the *time*, and ſo will ſtrike an under *Octave*, 1 to 2 *Vibr.*

Caſ. 7. Let $AB > CD$, *Fig.* 5. have both *Size* and *Tenſion* as much *leſs*, as 'tis *longer*; 'twill *vibrate* to a *diſtance* greater in a *duplicate Proportion* (*per Caſ.* 3. *Hyp.* 2.) in a *time* proportionably greater (*per præm.* 2.) as if double the *Length*, it has but half the *Size* and *Tenſion*, to quadruple the *diſtance* $TT=4TV$ in twice the *time*, and ſo will ſtrike an under *Octave*, 1 to 2 *Vibr.*

Caſ. 8. Let $AB > CD$, *Fig.* 4. have a *Size* as much *greater*, and a *Tenſion* as much *leſs* as 'tis *longer*; 'twill *vibrate* to a *diſtance* greater in a *duplicate Proportion* (*per Caſ.* 3. *Hyp.* 2.) in a *time* greater in a *triplicate Proportion* (*per præm.* 2.) as if double in Length and *Size*, and but half ſo much *tended*, to quadruple the *diſtance* $PS=4PQ$ in octuple the *time*; and ſo will ſtrike an under *Triſdiapaſon*, or a 22*d*, 1 to 8. *Vibr.*

Caſ. 9. Let $AB > CD$, *Fig.* 5. have a *Size* as much *leſs*, and a *Tenſion* as much *greater* as 'tis *longer*; 'twill *vibrate* to the ſame *diſtance* TV (*per Caſ.* 2. *Hyp.* 2.) in a time proportionably *leſs* (*per præm.* 2. *vel Caſ.* 3. *Hyp.* 1.) as if half the *Size* in half the *time*; and thereby will ſtrike an upper *Octave*, 2 to 1 *Vibr.*

All which *Caſes*, may be thus briefly expreſſed (putting T for *Tenſion*, D for the *Size* or *Diameter*, and L for the *Length* of the *String*:) ſuppoſing $\frac{T}{LxD}=1$ to be the *Acuteneſs* of the Sound propoſed (to which you compare the reſt) the *Acuteneſs* in the other *Caſes* compared to it, will be in the *Proportions* following reſpectively.

Hypoth. 1. *Caſe* 1. $\frac{T}{LxD}=\frac{1}{1}$. 2. $\frac{2T}{LxD}=\frac{2}{1}$. 3. $\frac{T}{Lx2D}=\frac{1}{2}$. 4. $\frac{2T}{Lx4D}=\frac{1}{2}$. 5. $\frac{\frac{1}{2}T}{Lx2D}=\frac{1}{4}$.

Hypoth. 2. *Caſe* 1. $\frac{T}{2LxD}=\frac{1}{2}$. 2. $\frac{2T}{2LxD}=\frac{1}{1}$. 3. $\frac{\frac{1}{2}T}{2LxD}=\frac{1}{4}$. 4. $\frac{T}{2Lx2D}=\frac{1}{4}$. 5. $\frac{T}{2Lx\frac{1}{2}D}=\frac{1}{1}$.

6. $\frac{2T}{2Lx2D}=\frac{1}{2}$. 7. $\frac{\frac{1}{2}T}{2Lx\frac{1}{2}D}=\frac{1}{2}$. 8. $\frac{\frac{1}{2}T}{2Lx2D}=\frac{1}{4}$. 9. $\frac{2T}{2Lx\frac{1}{2}D}=\frac{2}{1}$.

The

The Reaſon of which manner of Expreſſion, depends on this; that (in *Proportions* expreſſed after the manner of *Fractions*) *increaſing* that above the Line, doth *increaſe* the Value (and ſo doth the *Increaſe* of *Tenſion*, *increaſe* the *Acuteneſs*:) But *increaſing* that under the Line, doth *diminiſh* the *Value* (and ſo doth the *Increaſe* of the *Length*, and the *Increaſe* of the *Size*, *diminiſh* the *Acuteneſs*) in the ſame *Proportion*. Which may ſerve for a brief *Demonſtration* of the whole.

By which may be judged of, all other more mixt or compound *Caſes*, which are infinite, according to the divers unequal Proportions, of *Length*, *Bigneſs*, and *Tenſion*; but being all made out of, or founded on *theſe*, they will all hold true in *Analogy* to them.

204. From many of which *Caſes* 'tis plain and eaſy, that the *Sympathy* and *Conſent* of *Strings* lies not wholly in their like *Tenſion* and Formation of *Pores*, as was ſuppoſed §. 24. of the firſt Chapter of this *Book*. Whence alſo 'tis equally eaſy to make theſe three following *Illations*.

1. That *Strings* agreeing in either *Length*, *Bigneſs*, or *Tenſion*, can be made *Uniſons* but four ways. 1. If they be of the ſame *Length*, *Bigneſs*, and *Tenſion* (*per Caſ.* 1. *Hyp.* 1.) 2. Of the ſame *Length*, and one a *Size* and *Tenſion* equally greater than the other (*per Caſ.* 4. *Hyp.* 1.) 3. Of the ſame *Size*, and one a *Length* and *Tenſion* equally *greater* (*per Caſ.* 2. *Hyp.* 2.) 4. Of the ſame *Tenſion*, and one as much *longer* as 'tis *leſs* (*per Caſ.* 5. *Hyp.* 2.) and after the ſame manner when they diſagree in all *three*, as will be obvious to the *conſidering*: Wherefore *Uniſons* are always *Strings* of the ſame, or a proportionable *Length*, *Bigneſs*, and *Tenſion*.
2. That *Uniſons* may be moved by the ſame *Force*, in the ſame *Time*; or being moved by the ſame or an equal *Force*, will *Vibrate* in the ſame *Time*; as is manifeſt in the fore-mentioned *Caſes*, to which all others bear *Analogy*.
3. That *Octaves* being moved by the ſame or an equal *Force*, the upper will *Vibrate* in half the *Time*, that the under does, or twice to its once (*per Caſ.* 2 & 3. *Hyp.* 1. & *Caſ.* 1, 6, 7, & 9. *Hyp.* 2.) wherefore they can by no *Force* be made to *Vibrate* together; for as much as the ſame *String* (being of the ſame *Length*

and *Tenſion*) always *Vibrates* in the ſame *Time*; a greater *Force* only making it fly out to a greater *Diſtance*, or fetch a greater *Compaſs* in its *Vibrations*, and thereby *move* (but not *Vibrate*) faſter, *per Concluſ. poſt Præmiſſas.* And the ſame is verified concerning all other *Notes.*

205. Having done with his *firſt Principle*, with the *Hypotheſes*, and ſeveral *Caſes* attending it, the ſame Reverend and Learned Dr. *N. M.* proceeds to his ſecond *Principle, viz. That all tuned Strings either are or conſiſt of Uniſons*, which will plainly appear from the diviſion of the *Monochord*; where,

1. *Uniſons* are as *AB* to *BC*, *Fig.* 6. 1 to 1 *part*, or *Vibration, per Illationem* 1. & 2.
2. A *Diapaſon* or *Octaves*, as *BC* to *CD*, *Fig.* 7. 1 to 2 *Uniſons*, or 2 to 1 *Vibrat. per Illat.* 3.
3. A *Diapente*, or perfect *fifths*, as *CD* to *DE*, *Fig.* 8. 2 to 3 *Uniſons*, or 3 to 2 *Vibrat.*
4. A *Diateſſeron*, or *fourths*, as *DE* to *EF*, *Fig.* 9. 3 to 4 *Uniſons*, or 4 to 3 *Vibrat.*
5. A *Ditone*, or greater *thirds*, as *EF* to *FG*, *Fig.* 10. 4 to 5 *Uniſons*, or 5 to 4 *Vibrat.*
6. A *Semiditone*, or leſſer *thirds*, as *FG* to *GH*, *Fig.* 11. 5 to 6 *Uniſons*, or 6 to 5 *Vibrat.*
7. A *Diapaſon* with a *Diapente*, or *twelfths*, as *IK* to *KL*, *Fig.* 12. 1 to 3 *Uniſons*, or 3 to 1 *Vibrat.*
8. A *Diſdiapaſon* or *fifteenths*, as *MN* to *NO*, *Fig.* 13. 1 to 4 *Uniſons*, or 4 to 1 *Vibrat.*

And ſo for the reſt, whereof the chief may be expreſſed on one Line, *Fig.* 14.

Where
- *AB. AC.* or *AC. CG* or *AD. AG.* are — 8.
- *AC. AD.* or *AE. AG.* — 5.
- *AD. AE.* — 4.
- *AE. AF.* — 3ma.
- *AF. AG.* — 3mi.
- *AD. AF.* — 6.
- *AC. AF.* — 10.
- *AB. AD.* or *AB. BE.* or *AC. AG.* — 12.
- *AB. AE.* or *AB. BF.* or *AB. CG.* — 15.
- *AB. AF.* or *AB. BG.* — 17.
- *AB. AG.* — 19.

206. And

206. And thus much for his *Principles*, whence he goes on to ſome ſpecial or *particular Propoſitions*, in order to demonſtrate the late obſerved *Phænomena*, which immediately follow.

Prop. 1. *If two Strings be tuned Uniſons* AB. BC. Fig. 6. *and either be touched with the Hand or Bow, the other will anſwer it, by trembling at its Motion.*

For the *Air* being put into an *arched Figure* and *Motion* by the *String* that is touched, rolls away to the other, which finding of a *Length*, *Bigneſs*, and *Tenſion*, that are the ſame, or proportionable (*per Illat.* 1.) it eaſily (by the *Force* it received from the touched *String*) imprints both *Figure* and *Motion* into it, in the *firſt Caſe* (*per Caſ.* 1. *Hyp.* 1. *Princ.* 1.) or elſe communicates its *Motion* only, in the *ſecond*, (*per Illat.* 2.) whereby the next Undulation of *Air*, from the touched *String*, taking it juſt at its return, and in like manner the conſequent ones, and moving it as before, they continue their *Vibrations* together, *paſſibus æquis*, Q. E. D.

Prop. 2. *If the leſſer of two Octaves* BC, *be touched* Fig. 7. *each half of the greater* C2, 2D *will anſwer it, the middle* 2 *ſtanding ſtill;* which he thus demonſtrates.

About *CD* wrap looſly 3 narrow *ſtrips* of *Paper*, one in the middle 2, the other betwixt *C*2 and 2*D* (*exemp. gr.* in *p* and *q*) then with the *Finger* or *Bow* ſtrike *BC*, or any part of it, and you will ſee the Papers in *p q*, dance and play up and down and about the String, 'twixt *C*2 and 2*D*, but that in 2 ſtand ſtill. Whence it is evident, that *CD* moves in its two *Halves*, by two *diſtinct* Motions. Which he thinks occaſioned by the arched *Airs*, ruſhing with the *Force* of *BC* againſt all *CD*, and moving it ſomewhat forward out of its place; but finding it of a diſproportionate *Length*, *Bigneß*, and *Tenſion*, to be excited by ſo quick *Vibrations*, as may correſpond with thoſe of *BC*, and the Undulations whereinto they ſtrike the *Air* (by which alone it cauſes any String to *vibrate*) *per Illat.* 3. the ſecond *Undulation* of the *Air* from *BC* meets *CD* juſt at its return (*CD*'s *Vibrations* to *BC*'s, and the *Air*'s *Undulations* cauſed thereby, being as 1 to 2) whereby it is beat back, and rebounds from

2 to-

2 towards *BC*, when the third *Undulation* from *BC* occurring, forces it forward again; whereupon (not being able to move backward nor forward) the *Undulations* break and roll away to each ſide, towards *C* and *D*. Which parts *C*2. 2*D* being *Uniſons* to *BC*, *per Princip.* 2. it eaſily moves them *per Prop.* 1. and ſo, (though *Des Cartes* denies it [d]) they apparently *vibrate* in *p q* (*vid. Fig.* 15.) by two *diſtinct* Motions, *Q. E. D.*

Prop. 3. *If the greater of two Octaves* CD *be touch't on either of its Halves* C2. 2D. *all the leſſer will anſwer it, but if on the middle* 2 *it will ſtir no where.* Which is thus demonſtrated.

About *BC*, *Fig.* 7. wrap looſly one *ſtrip* of *Paper*, then with the *Finger* or *Bow*, ſtrike *CD* on either *Half*, *C*2 or 2*D*, and you will ſee the Paper dance and play as before, and that in all parts of *BC* alike; but if you ſtrike it on the *middle* 2, the Paper will not ſtir. The Reaſon whereof ſeems to be, that *C*2. 2*D* being *Uniſons* to *BC*, *per Princ.* 2. if either be touched, *BC* will anſwer it, *per Prop.* 1. But *CD* having a diſproportionate *Length*, *Bigneſs* and *Tenſion* to *BC*: if touched in 2 (whereby the whole *String* is equally moved) it cannot affect it, by reaſon of their different *Vibrations*; as in the former *Propoſition*, *Q. E. D.*

Note that this, and (eſpecially) the following *Experiments*, muſt be tryed curiouſly by a gentle touch of the *String* (only ſo hard as to make the *Papers* move) and that with a *Bow* rather than the *Finger*: For if *CD* be touched boldly in 2 (with the *Finger* he means, not the *Bow*) by reaſon of the ſtrong motion communicated to its *parts* (and happily divided there, which perhaps may be the cauſe too, why, if you ſtrike it with the *Bow* in 2, it ſends forth a ſcreaking broken ſound) *BC* will tremble, but with a motion nothing ſo *briſk*, as when touched with but half the *Force* any where elſe.

Prop. 4. *If the leſſer of two Fifths*, CD Fig. 8. *be touched on either of its Halves* C2. 2D, *each third part of the greater* DX, XZ, ZE, *will anſwer it, but if in the middle* 2 *they will not ſtir.* Which will plainly appear,

By laying *Papers* as before, on *t*, *x*, 3, *z*, *v*, if then you ſtrike *CD* on *C*2 or 2*D*, you'll ſee the *Papers* on *t*, 3, *v*, friſk

[d] *Des Cartes Muſ. Comp. p.* 5.

and

and dance, while thoſe on *x* and *z* ſtand ſtill, but if you ſtrike it on 2 none will move. *Demonſtratio eadem eſt cum ſuperioribus*, for C2. 2D are *Uniſons*, and *CD* an *Octave*, to *DX, XZ, ZE, per Princ.* 2.

If it be demanded, wherefore *DZ* or *XE* (which are *Uniſons* to *CD per Princip.* 2.) do not *vibrate* when it is touch'd in 2. He anſwers, if *DZ*, then by the ſame reaſon *XE* alſo, and ſo *XZ* would at the ſame time be moved by contrary motions, as in *Fig.* 16. *Q. E. A.*

Prop. 5. *If the greater of two Fifths* DE *be touched,* Fig. 8. *on either of its Thirds* DX, XZ, ZE, *each half of the leſſer* C2. 2D, *will anſwer it: but if in the diviſions* XZ, *they will not ſtir.*

Experimentum & Demonſtratio inſtituuntur ut ſupra, DX, XZ, ZE, being *Uniſons* to C2. 2D, and *Octaves* to *CD, per Princip.* 2.

If it be askt, why, when *DE* is toucht on *X* or *Z*, whereby the conterminous parts ſeem principally to be moved, *CD* does not *Vibrate*, which is *Uniſon* to it. He anſwers, that if all *CD* could tremble, then beating the *Air* back again on *DE*, it would at once ſhake *DZ* and *XE* (*Uniſons* to *CD*) as in the former *Propoſ. Q. E. A.*

Prop. 6. *If the leſſer of two twelfths* I K, Fig. 12. *be touched, each third part of the greater,* K a, a b, b L, *will move; but in the diviſions,* a b *ſtand ſtill.* On the contrary, *if the greater be touched on its parts,* K a, a b, b L, *all the leſs will tremble; but if on the diviſions* a b, *it will not ſtir.*

Experimentum & Demonſtratio ut ante, I K being a *Uniſon* to K a, a b, b L, *per Princip.* 2.

Prop. 7. *If the leſſer of two fifteenths,* MN, Fig. 13. *be touched, the greater will move in all its quarters* N c, c 4, 4 d, d O, *but not in their diviſions,* c 4 d. On the contrary, *if the greater be touched on either of its quarters* N c, c 4, 4 d, d O, *all the leſs will move; but if on the diviſions* c 4 d, *it will ſtand ſtill.*

Experimentum & Demonſtratio inſtituuntur ſupra. MN being *Uniſon* to N c, c 4, 4 d, d O, *per Princip.* 2.

207. Thus having cleared the late obſerved *Phænomena* mentioned above in §. 199. he infers the following *Corollaries.* 1. That

1. That all *Conſonancy* (or *Sympathetick* motion of *Strings*) is made by *Uniſons*, that is, 1 moves 1, and not 1, 2. or 2, 3, *&c.* as appears from the fore-going *Propoſitions.* Hence
2. That each *String* at the due touch of another, will tremble in as many places as it contains *Uniſons* thereunto, whether to the *whole* or its *parts.* So a lower *Octave* in 2, each half being *Uniſon* to the higher; a lower *fifth* in three, and the higher in two, they being as 3 *Uniſons* to 2, *&c.* Hence
3. That all tuned *Strings* whatever (whether *thirds*, *fourths*, *fifths*, *ſixths*, *&c.*) will anſwer each other more or leſs, at the due touch of their *Correſpondents:* But the *Tremor* or *Vibration* in ſome of them being made in many places at the ſame time (according to the number of *Uniſons*, *per Corol.* 2.) and therefore not great, where the part moved is but ſhort (*per Caſ.* 1. *Hyp.* 2. *Princ.* 1.) it cannot always be diſcerned by the *Senſe*, but follows by a parity of *Reaſon;* contrary to what *Des Cartes* [c] aſſerts, that ſuch Vibrations are found only in upper *thirds* and *fifths.*

208. From the ſame *Principles* may be ſhewn how a *Man* may ſtrike any two *Notes* with his *Mouth* at the ſame time. For if a *Man* open his *Mouth* in two places at once, as *AB* to *BC*, *Fig.* 17. or as 1 to 2 both in *Length* and *Bredth*, and then force out the *Breath* ſtrongly againſt them (thus opened) ſo that the ſound be all begotten there (as in *Whiſtling*) you will hear diſtinct and perfect *Octaves*, *per Princ.* 2. And ſo ſecondly, if a *Man* can open his *Lips* as *BC* to *CD*, *Fig.* 18. or as 2 to 3 in *Length* and *Bredth*, and do as before, he will ſtrike *fifths*, *per Princ.* 2. And after the ſame manner for the reſt of the *Notes*, according to the diviſion of the *Monochord.*

209. According to which *Hypotheſis* one *Hooper* late of *Oxford*, could ſo cloſe his *Lips*, as to ſing an *Octave* at the ſame time. And I knew two other Perſons then living here, that could do it though their Lips ſeem'd not to be ſet in that poſture, yet they ſhut them ſo cloſe that they could by no means pronounce any thing *Articulate.* But *he* that excelled them all, was one Mr. *Joſhuah Dring*, a young Gentleman late of *Hart-Hall*, who could ſing a Song *Articulatly*, *ore patulo*, and all in *Octaves* ſo very ſtrongly, and yet without much ſtraining, that he equall'd if not excell'd the loudeſt *Organ.*

[c] *Muſicæ Compend. p.* 9.

210. By

210. By what means he perform'd this is hard to gueſs, unleſs the *Epiglottis* and *Uvula* be both concerned in it, one ſounding the *upper*, and the other the *lower Octave*: or either of them apart, opening unequally as 1 to 2 in *Fig.* 17. or which is moſt likely of the *three*, by an unequal application of the *Uvula* to the *Epiglottis*. For his own part he could give but little account of it *himſelf*, only that he perform'd it in the lower part of his *Throat*, and that it came caſually on him at firſt, upon *ſtraining* his *Voice*; yet muſt it not be reckoned a meer *caſualty* neither, for he ſung thoſe *Octaves*, or otherways (and both very) ſtrongly according to pleaſure. And this is all I know of new, concerning the *Mathematicks*, except there be any thing of *Chorography* in the *Map* of *Oxford-ſhire* prefixt to this *Eſſay*, that may be thought worthy the name of a *new Contrivance*.

211. In *Natural Philoſophy*, *Medicine* and *Anatomy*, there have alſo been many new *Inventions* and *Improvements* made of later Years in this *Univerſity*, which, as they *promiſcuouſly* fell out in order of *time*, immediately follow. The Honorable and Ingenious *Robert Dudley* Eſq; formerly of *Chriſt-Church* aforementioned, titular Duke of *Northumberland*, was the firſt *Inventor* of the *Pulvis Cornachinus*, being a mixture of *Diagridium*, *Tartar*, and *Diaphoretic Antimony*, with *Cream* of *Tartar*, the proportions varying *pro re nata*[e]; a *Medicine* of ſuch general and excellent uſe, that *Marcus Cornachinus* (from whom it has its name) wrote a whole Treatiſe concerning it, commending it to the World as highly uſeful in all Diſeaſes whatever, requiring *Purgation*.

212. Nor doubt I in the leaſt, notwithſtanding the pretentions of the Famous *Thomas Bartholin*, and *Olaus Rudbeck*, but that the Ingenious Mr. *Jolliff* of this *Univerſity*, firſt of *Wadham*, and after of *Pembroke-College*, was the firſt *Inventor* of that fourth ſort of *Veſſels*, plainly differing from the *Veins*, *Arteries*, and *Nerves*, now commonly call'd the *Lympheducts*: that he knew them about the beginning of *June*, *An.* 1652, we have the Teſtimony of the Learned and Famous Dr. *Gliſſon*, to whom he diſcovered them, coming to *Cambridge* to take his *Doctor's* Degree[f]; at what time, ſays the Learned Dr. *Walter Charleton*, 'tis plain from *Bartholin*'s own Book ſet forth in *May*, 1653. that he ſcarce ever dreamt of them[g].

213. Yet I know the Learned *Bartholin*, amongſt his *Anatomical Hiſtories*, tells us he firſt found them the 15*th* of

[e] J. Schroderi *Pharm. Medico-Chym. l.* 2. *c.* 77. [f] F. Gliſſonii *An. Hepat.* 31. [g] G. Charletoni *Oecon. Animal. Exer* 9.

December 1651. and again, the 9th of *January*, and 18th of *February* 1652 [h], and that the Learned *Olaus Rudbeck* says, he first discovered them in *October* and *November*, 1650. both anticipating the Date of Dr. *Glisson*. But I have been frequently told by my worthy and learned Friend, Dr. *Robert Stapley*, an eminent Physician, and one of unquestionable Fidelity, Contemporary with Mr. *Jolliff* at *Pembroke College* till *Oxford* was made a Garrison for the *King*, about the Year 1642, that they were often shewn to him by the same Mr. *Jolliff* while they were Students there. To which add the Testimony of the fore-cited Dr. *Charleton*, that these *Vessels* were known and commonly talked of amongst the *Fellows* and *Candidates* of the famous *College* of *Physicians* in *London*, many Years before they heard any News of them from beyond Sea [k]. Not to mention that Dr. *Highmore* seems to have noted something of them, though veiled under a different Name and Description.

214. The same Learned Dr. *Highmore*, formerly of *Trinity College Oxon.* was the first, that we know of, that treated of the Structure of *Man*'s Body, adapting it to the then new received Doctrine of the *Circulation* of the *Blood*; for the Proof whereof he seems chiefly to have intended his Piece of *Anatomy*, dedicating it to the *Author* of the *Invention*, the famous Dr. *Harvey*: Wherein he has several new *Cuts* of the *Spleen*, *Pancreas*, *Testes*, &c. of which, though most have since received considerable *Improvements* from *others*, yet it must be acknowledged that he deserved very well for his diligent and laborious Search into them all, but more particularly for his first Discovery of the *ductus* for the Carriage of the *Seed* from the *Testes* to the *Parastatæ* [l], and for his new Descriptions of the *Vessels* and *Fibres* of the *Spleen*, by the ancient *Anatomists* held to be *Veins* [m], and of the intricate *plexus* of the *Parastatæ*, [n] &c.

215. In *Natural Philosophy*, the famous Dr. *Willis* formerly of *Christ-Church-College Oxon.* and *Sidleyan* Professor of *Natural Philosophy* in this *University*, first taught us, that the *Generations*, *Perfections*, and *Corruptions* of *Natural Bodies*, whither *Mineral*, *Vegetable*, or *Animal*; and so likewise of *Bodies Artificial*, do depend upon *Fermentations*, raised from the different Proportions and Motions of *Spirit*, *Sulphur*, *Salt*, *Water*, and *Earth*, which he did

[h] Tho. Bartholini *Historiar. Anatom. Rar. Cent.* 2. *Hist.* 48. [i] Rudbeckii *Epist. ad* Bartholin. *de Vasis Serosis*, *p.* 11. [k] *Idem loco citato. Vid. etiam Epist.* Timoth. Clark, *M. D.* Philosoph. Transact. *Numb.* 35. [l] *Corp. Human. disquisit. Anatom. Lib.* 1 *part.* 4. *cap.* 2. [m] *Ibid. part.* 3. *cap.* 3. [n] *Ibid. part.* 4. *cap.* 2.

con-

conſtitute the ultimate ſenſible *Principles* of *mixed Bodies* °. According to which, in his Book *de Febribus*, he has given us the *Anatomy* of *Blood*, and declared the true Cauſes and Nature of *Fermentations* in the *Juices*, and upon them built his moſt rational Doctrine of *Fevers*, *Intermittent*, *Putrid* and *Malignant*, with particular Inſtances and Obſervations concerning them, much different from the ways of the *Ancients*: to which he has ſuperadded the *Spagyrical Anatomy* of *Urin*.

216. In *Anatomy* (wherein he had the Aſſiſtance of the deſervedly Famous, Sir *Chriſtopher Wren*, Dr. *Millington*, Dr. *Edmund King*, Dr. *Maſters*, but chiefly of Dr. *Lower*) his *Method* of diſſecting the *Brain* is new, and moſt *Natural*; and ſo exact, that there is ſcarce any one part in it, but what has received conſiderable *Advancements* from him. To mention all would be endleſs, let it therefore ſuffice, that after his Deſcription of the *Palace* in general, he has allotted the ſeveral Appartments to the *Faculties* of the *ſenſitive Soul*: His placing the *Spirits* to ſerve to voluntary Actions in the *Cerebrum*, and thoſe that ſerve *Involuntary* in the *Cerebellum*, is a noble and uſeful Diſcovery.

217. His aſſigning the *cortical* part for generating *Spirits*, and the Seat of *Memory*; the *Medullary*, or *Corpus calloſum*, for the Operations of the *Phantaſie*; the *Corpus ſtriatum* for the *common Senſe*; the *Medulla oblongata*, a *promptuary* for the *Spirits*, for performing the Office of *Senſation*, and *ſpontaneous* Motion; and the *Prominentiæ orbiculares*, and their *Epiphyſes*, for conveying the *Impreſſes* of the *Paſſions*, and *natural Inſtinct*, between the *Cerebrum* and the *Cerebellum*, are highly ingenious and his own; and ſo is his, and Dr. *Lower*'s joint Diſcovery of the curious *plexus*, of the *vertebral* and *ſpinal Veins* and *Arteries*; their *Neurologia* is alſo moſt elaborate and no leſs admirable, tracing the *Nerves* from their very Source, and following them through all the *Meanders* of the Body, and thence ſhewing us the Reaſon of the ſecret *Sympathies* of the Parts.

218. And although Dr. *Willis* was not the firſt that mention'd two *Souls* in a Man, *viz.* the *Senſitive* and *Rational*; yet there is no Body has proved it ſo well as himſelf; as likewiſe that the *Senſitive* is *igneous*; and that there are two Parts of it, the *flammea* and *lucida*; Where he diſcourſes of the manner how the *Soul* performs its *Operations* in us;

° *In Libro de Ferment.*

he does it, as indeed he has done all, with the greateſt *Improvements* within the Compaſs of *Wit* and *Reaſon*: And having fully diſcovered the *Hypoſtaſis* of the *ſenſitive Soul*, its *Affections* and *Senſes*; he further obliges *Mankind* with a moſt rational Account of the *Diſeaſes* ſeated in it, and the *nervous Juice*, according to the different parts of the *Brain*, and the *Syſtema nervoſum*; placing *Cephalalgies* in the *Meninges*; *Lethargies*, *ſomnolentia continua*, *Coma*, *Carus*, *Pervigilium*, and *Coma vigil*, in the *Anfractus* and *Cortical* part of the *Brain*; the *Incubus* in the *Cerebellum*: Then deſcending to the *Corpus calloſum*, he finds the *Spirits* there ſometimes hurl'd round into *Vertigo's*, ſometimes exploded in *Spaſms*, *Convulſions*, *Epilepſies*, ſometimes eclipſed in *Apoplexies*.

219. In the *Corpora ſtriata*, and *Medulla oblongata*, if the *Spirits* that ſerve to *Motion* be diſturb'd, thence he ſhews come likewiſe *Spaſms* and *Convulſions*; if thoſe that ſerve to *Senſation*, *Dolor*; if either, or both, are impeded or deſtroyed, the *Palſie*: And as the *ſenſitive Soul* is the Seat and Organ of the *rational*, ſo the ill Conſtitution of *that* (he obſerves) proves oftentimes the Diſorder of the *other*: For the *animal Spirits* being *ſpirituo-ſaline*, if they are *inflamed*, they produce a *Phrenſie*; if *acid*, *Melancholy*; if *acrous*, like *Aqua ſtigia*, *Madneſs*; if *vapid*, *Stupidity*. In diſcourſing of which Diſtempers, his *Ætiologies* of the various *Symptoms*, his *Methods* of *Cure*, and Forms of *Preſcriptions*, are founded upon far more rational *Principles* than ever *Greece* taught us. And how far *Antiquity*, and later *Ages* too, were miſtaken in their *Notions* of divers other *Diſeaſes*; his evincing *hyſterical* and *hypochondriacal Affections*, the *Cholic*, *Gout*, *Scurvy*, ſome ſort of *Aſthma's*, the *Tympanitis*, with *others*; either wholly, or in part to be *nervous*, does plainly demonſtrate.

220. Nor has the *pathological* part of *Phyſick* been only happy in his *Labours*; but the *pharmaceutical* part likewiſe proved in the *Inventions* of his *Spiritus Salis Armoniaci ſuccinatus*, *Syrup* of *Sulphur*, *preparation* of *Steel* without *Acids*, and from thence of his *artificial Acidulæ*: In general, this part of *Phyſick* has been ſo far advanced by *him*, that what was formerly *Empirical*, and but lucky Hits, is now become moſt rational, by his making the *Operations* of *Chathartic*, *Emetic*, *Diaphoretic*, *Cardiac*, and *Opiat Medicines*, intelligible by *mechanical Explications*; having ſubjoined to each moſt neat and artificial *Formula's*,

as

as well *Chymical* as *others*; a *Province* but meanly adorned by the *Ancients*, though of infinite uſe. And where Nature is exorbitant in any of theſe *Evacuations*, he has likewiſe taught us how to check and reduce *her*; adding for the better Illuſtration of the whole, a new *Anatomy* of the *Stomach*, *Inteſtines*, *Gula*, *Veins*, and *Arteries*.

221. Which he has ſeconded with a further Diſcovery and rational Account of *Thoracic* and *Epatic Medicines*, and of the *Diſeaſes* belonging to thoſe *parts*; diſcourſing alſo of *Veneſection*, ſtopping of *Hemorraghies*, of *Iſſues* and *cutaneous Diſtempers*: In all which it may be obſerved, what is almoſt peculiar to him, that there is nothing *trivial*, moſt *new*, and all moſt *ingenious*. To which add, that the *Organs* of *Reſpiration*, which have been the *Subject* of ſo many Learned Pens of late, are beſt underſtood from his moſt elegant *Deſcriptions*, and beautiful *Cuts*. But it is too difficult a Task to give a juſt account how far *Phyſick*, *Anatomy*, *Chymiſtry*, and *Philoſophy*, ſtand indebted to *him* for their *Improvements*. Let it ſuffice to ſay, that he has introduced a new *Body* of *Phyſick*, almoſt univerſally embrac'd before all *others*, and a new *Sect* of *Philoſophers*, at home and abroad called *Williſians*; ſo that *England* (for ought I know) may have as much reaſon to boaſt of her Learned *Willis*, as *Coos*, and *Pergamus* of old, of their great *Maſters* in *Phyſick*.

222. The Learned and Ingenious Sir *Chriſtopher Wren*, formerly *Savilian* Profeſſor of *Aſtronomy* in this *Univerſity*, was the firſt *Author* of that noble *Experiment* of injecting Liquors into the *Veins* of *Animals*, firſt exhibited to the Meetings at *Oxford*, about the Year 1656 [p]. and thence carryed by ſome *Germans* and publiſh'd abroad; by which *Operation* divers *Animals* were immediately *purged*, *vomited*, *intoxicated*, *kill'd* or *reviv'd*, according to the Quality of the *Liquor* injected [q], whereof we have ſeveral *Inſtances* in our *Philoſophical Tranſactions* of *Decemb. 4th* 1665 [r]. From whence aroſe many other new *Experiments*.

223. Particularly that of *transfuſing* of *Blood* out of one *Animal* into another, firſt performed here at *Oxford* about the latter end of *February*, in the Year 1665 [s]. by that moſt exquiſite *Anatomiſt*, and eminent *Phyſician*, Dr. *Richard*

[p] *Vid. Epiſt.* Tim. Clarck, *M. D.* Philoſ. Tranſ. *Numb* 35. [q] Hiſtory of the Royal Society, *Part.* 2. *ſub finem.* [r] Philoſ. Tranſ. *Numb.* 7. [s] *Vid. Tractat. de Corde*, &c. *cap.* 4. *de transfuſione Sanguinis.*

Lower,

Lower, formerly Student of *Chriſt-Church*; the *Method* whereof I ſhall not here mention, nor the Conſiderations upon it, becauſe there is a particular Account of both already given by the Learned *Inventor*, in his fore-cited Book *de Corde*, &c. and in our *Philoſophical Tranſactions* [t]. Nor how much the famous *Willis* was beholding to *him* for moſt of his *Anatomical Diſcoveries*, becauſe already freely acknowledged by the Doctor *himſelf*, in the *Preface* to his Book *de Cerebro*.

224. Wherefore paſſing by thoſe, I ſhall only hint in ſhort what I met with new in Dr. *Lower*'s Book *de Corde*, a Subject though handled by many Learned Men, yet not ſo far exhauſted, but it afforded new *Diſcoveries*, when it came to be examined by this moſt curious, moſt judicious *Author*. For though the *Heart* by *Hippocrates* was called μῦς, yet Dr. *Lower* was the firſt that publiſhed the true *Method* of dividing it into its ſeveral *Muſcles*, illuſtrating the ſame with moſt elegant *Cuts*; and by attributing to it a *muſcular* motion, and ſhewing ſeveral ways how it may be impeded or diſturbed, has done a good piece of Service toward the Advancement of the *pathological* part of *Phyſick*.

225. His Computation of the Frequency of the Blood's *Circulation* through the *Heart*, is very ingenious, and the Cauſe he aſſigns of the *florid Colour* of it when emitted, I think is *new*, and believe generally received: And having diſcover'd the *Channels* that carry away the *Serum* that is ſeparated by the *Glandules* of the *Brain*, to be thoſe two *foramina* in the *Os Cuneiforme*, which empty it into the *jugular Veins*, he has ſufficiently detected how far the *Ancients* were miſtaken, in making the *Cauſes* of ſeveral *Diſtempers* to be *Defluxions* or *Humors* falling from the *Brain*; which Paſſage of the *ſecreted* Humors into the *jugular Veins*, is indeed mention'd alſo by Dr. *Willis*, but ſuppoſed by moſt to be Dr. *Lower*'s Invention.

226. The Ingenious *John Mayow* L. L. D. late Fellow of *All-Souls-College*, but Student in *Phyſick*, has alſo taught us, that the *Air* is impregnated with a *Nitro-aerial Spirit*, and that it is diffuſed almoſt through the whole *Syſtem* of *Nature*; that *Fire* it ſelf, as to its Form and Eſſence, is nothing elſe but this *Nitro-aerial Spirit* put into Motion, and that all *Fermentations*, whether tending to *Generation*, *Perfection*, or *Corruption*, alſo depend on this

[t] Philoſoph. Tranſact. *Numb.* 20.

Spirit

Spirit, with many other *Phænomena* of *Nature*; all which he has ingeniously deduced from his *Nitro-aerial Principles*, and confirmed them by *Experiments*.

227. He has taught us also, in his Treatise *De Motu Musculari*, that whereas *Anatomists* have hitherto perswaded us, that the *carneous Fibres* chiefly make the *Contraction* in *Muscles*, that it is much more probable that the *Fibrillæ*, transversly set into the greater *Fibres*, are the immediate *Instruments* of that *Motion*, by reason as well of their Position as Size and Number. And he has given the best Account that I have any where met with, of the reason of the *Incurvation* of the *Legs bones* and *Spina dorsi*, in the Disease called the *Rickets*.

228. Lastly, the ingenious *Edward Tyson* M. D. formerly of *Magdalene Hall*, has observed, that many other strong scented *Animals*, beside the *Hyæna odorifera*, *Catus Zibethicus*, or Civet-cat; the *Fiber* [*Castor*] or Bever, from whom we have our *Castoreum*; the *Gazella Indica*, or *Capra Moschi*, from whom our *Musk*; and the Fishes, *Sepia*, *Loligo*, *Purpura*, have *follicular Repositories* or *Bags*, near the *exit* of the *Intestinum rectum*, wherein they keep those *Humors* or *Liquors*, that are the *Vehicles* of their respective *Scents*.

229. This he first observed in a male *Pol-cat* he dissected here at *Oxford*, *Febr.* 4th 1674. and was further confirmed therein the second of *March* in the Year following, 1675, in a female *Pol-cat*, at the opening whereof I was present my self; since which times, he has found the same in a *Fox* dissected in the Presence of Dr. *Grew*; and since again in *Weasels*, *Cats*, *&c.* the *Vesicles* or little *Bags* being found by *Pairs*, one on each side the *Gut*; and according to the Bigness of the *Animals*, largest in the *Fox*, and least in the *Weasel*.

230. Those of the *Pol-cat* were about the Bigness of *Pease*, of a somewhat oblong *Figure*, and a Yellowish *Colour*, and seemed to consist of a double Substance, *Glandulous* and *Membranous*; the *Membranous* toward the Necks of the *Bags* being covered with *Glandules*, but toward the *Fundus* wholly *Membranous*, representing, upon being emptied, *orbicular muscular Fibres*, which he supposes by *Contraction* force the contained *Humor* out into the *Gut*.

231. The use of the *Glandules* he doubts not to be, to separate the *Humor* from the Mass of *Blood* (all *Secretions* in the Body being performed by the Help of *Glandules*) and the

the Necks of the *Bags* immediately emptying themſelves into the *Gut*, without any continued *ductus*; and being placed near the *Sphincter Ani*, made him think the contained *Humor* in reſpect of the *Animal*, to be *excrementitious*. In this *Pol-cat* it was of ſomewhat a thick *Conſiſtence*, for the moſt part *White*, but in ſome places of a *Greeniſh Yellow* Colour, and upon preſſing out, of ſo ſtrong a *Scent*, that I could ſcarce (I well remember) endure the *Room*; which once removed from the *Body*, we could not perceive any conſiderable ill *Smell* in any of the other *Parts*.

232. In a *Cat* that he diſſected (which was but a young one, and a *Female*) the *Bags* when blown up were not above the *Size* of ordinary *Peaſe*, ſeated like the former on both ſides the *inteſtinum rectum*, juſt under the *Sphincter Ani*, which covering them, he ſuppoſes might both occaſion their not being noted before, and help in the Expreſſion of the *Humor* out, which (he obſerved in the *Cat*) was not into the *Gut*, but in the *Limb* or *margo Ani*, the Orifices of the *Bags* terminating there, ſo that he plainly perceived them before he began to diſſect her: The *Glandules* that ſeparate the *Humor* from the Maſs of *Blood*, and tranſmitted it into the *Bags*, afforded a pleaſant Sight, there being ſeven ſmall round *ones* placed in a *Circle* about the *Veſicles*, the *Humor* within not being conſiderable but for the *fœtor*.

233. Such *Glandules* (which he thinks hold the Nature of *Emunctories*) he has likewiſe obſerved in *Rabbits*, but with no conſiderable *Cavity*, the *Liquor* whereof he rationally gueſſes may give the *ranck Taſte* we find about thoſe *Parts* after they are roaſted: He thinks alſo ſuch like *Glandules* are found in *Mice* and *Rats*, and obſerves in ſome *Animals* they are found more *glandulous*, in others with a more ſignal *Bag* or *Cavity*. And *analogous* to theſe *Scent-Bags* in *Quadrupeds*, he believes thoſe *Glandules* ſeated on the *Rumps* of *Fowls*, whoſe *excretory Veſſels* may be thoſe little *Protuberances* or *Pipes* we obſerve on them; whence 'tis alſo (as in *Rabbits*) that we find the *Rumps* of *Fowls* ſtrongeſt taſted, and to partake moſt of the *natural Scent* of the *Fowl*.

234. That all *Animals* conſerve their peculiar *Scents* in ſuch like *Parts*, though he dares not aſſert; yet if the *Analogy* that *Nature* obſerves in forming moſt of the *Parts*, of moſt *Animals* alike, be ſufficient *Logick* to warrant an

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Inference, he thinks it highly probable, that 'tis ſo in *moſt*; and that ſhould they be found in *Men* (which he has not yet had Opportunity to Experiment) it might be worthy Enquiry, how far *Fiſtula's*, *Teneſme's*, &c. might be concern'd in *them*. Which is all I have met with new relating to this *County*, in *Medicine*, *Anatomy*, or *natural Philoſophy*. For to mention the many and new *Experiments* of the Famous Mr. *Boyle* (did we diſtinctly know which were made *here*) would be endleſs, and to recapitulate the *new Diſcoveries* (if there be any in this *Eſſay*) but a vain Repetition.

ADDITIONS *to* CHAP. IX.

§. 14. He ſeems alſo to have firſt found the *Art* of *Stenography*. *Eſt majus Artificium* (ſays he) *occultandi quod dicitur Ars notoria, quæ eſt Ars notandi & ſcribendi ea brevitate qua volumus & ea velocitate qua deſideramus. In Epiſt. ad* Pariſienſem, cap. 8.

§. 21. [*Robert Lorringe*, &c.] Of this *Robertus Herefordenſis*, ſee *Voſſ. de Hiſt. Lat.* p. 385.

§. 34. Here may be mentioned a new ſort of *Barometer* invented at *Oxford* by the Learned Mr. *Caſwell*. This *Barometer* is placed in a Bucket of Water, and conſiſts of two *Cylinders*, one of which he calls the *Body*, and the other the *Tube*; which communicate with each other, and are made of *Tin*: the Bottom of the *Tube* has a Lead-weight to ſink it, ſo that the Top of the *Body* may ſwim exactly even with the *Surface* of the Water; which is effected by the Addition of ſome Grain-weights on the Top. The Water, when the Inſtrument is forced with its Mouth downwards, gets up into the *Tube*. There is added on the Top a ſmall concave *Cylinder*, which he calls the *Pipe*, to diſtinguiſh it from the Bottom ſmall *Cylinder*, which he calls the *Tube*; the uſe of this *Pipe*, is to ſuſtain the Inſtrument from ſinking to the Bottom; from which *Pipe* to a *Wire* having a like Situation, on the Top there proceed two Threads oblique to the *Surface* of the Water, which Threads perform the Office of *Diagonals*: for that while the Inſtrument ſinks more or leſs by the Alteration of the Gravity of the *Air*, there, where the *Surface* of the Water cuts the Thread, is formed a ſmall *Bubble*, which *Bubble* aſcends up the Thread, while the *Mercury* of the common *Barometer* aſcends. Laſtly, having examined what Effect the Con-

traction of the *Air* within the Inſtrument may have by the Coldneſs of the Water, upon the ſaid Experiment, which he finds not very conſiderable, and that this new *Barometer* is 1200 times more exact than the common *Barometer*, he gives us theſe following Obſervations. 1. While the *Mercury* of the common *Baroſcope* is often known to be Stationary 24 Hours together, the *Bubble* of the new *Barometer* is rarely found to ſtand ſtill one Minute. 2. Suppoſe the *Air*'s Gravity encreaſing, and accordingly the *Bubble* aſcending, during the time that it aſcends 20 Inches, it will have many ſhort Deſcents of the Quantity of ½ an Inch, 1, 2, 3, or more Inches, each of which being over, it will aſcend again. Theſe Retroceſſions are frequent, and of all Varieties in Quantity and Duration, ſo that there is no judging of the general Courſe of the *Bubble* by bare Inſpection, though you ſee it moving, but by waiting a little time. 3. A ſmall Blaſt of Wind will make the *Bubble* deſcend; a Blaſt that can't be heard in a Chamber of the Town will ſenſibly force the *Bubble* downward. The Blaſts of Wind ſenſible abroad cauſe many of the above-ſaid Retroceſſions, or Accelerations in the general Courſe. 4. Clouds make the *Bubble* deſcend, a ſmall Cloud approaching to the *Zenith* works more than a great Cloud near the *Horizon*. 5. All Clouds hitherto obſerv'd, have made the *Bubble* to deſcend. But the other day the Wind being *North*, and the Courſe of the *Bubble* deſcending, there was ſeen to the Windward a large thick Cloud near the *Horizon*, and the *Bubble* ſtill deſcended, but as this Cloud drew near the *Zenith* it turn'd the way of the *Bubble* making it aſcend, and the *Bubble* continued aſcending till the Cloud was all paſs'd, after which it return'd to its former Deſcent. *Philoſ. Tranſ. Numb.* 290.

§. 142. [St. *Mary*'s in *Oxford*.] The *Univerſity-Church* in *Oxford* called St. *Mary*'s was re-edify'd by the Procurement of *Richard Fitz-James* Bp. of *London*. MS. *Dugdale*, n. 73. p. 11.

§. 168. This Art was firſt hinted at *Turvey* in *Bedford-ſhire*, but perfected by *Ralph Sherwood* of *London*, who indeed was the Apprentice of *Thomas Pierce* and *Henry Mallory*, who parting, *Mallory* communicated his to *Alder* who could work but one ſort, but *Ralph Sherwood* was the Man that perfected it, and could make 8 ſorts of Work to profit, and could make an endleſs number of ſorts, but not profitable.

§. 180. He taught him alſo a ſort of *Finger-Language*, of which *Beda* writ a Book. *Vid. Pitſ.* p. 178.

CHAP. X.

Of Antiquities.

AND thus having finiſh'd the *Natural Hiſtory* of *Oxford-ſhire*, I had accordingly here put a Period to my *Eſſay*, but meeting in my *Travels* with many conſiderable *Antiquities*, alſo relating to *Arts*, either wholly paſt by, both by *Leland* and *Camden*, or but imperfectly mention'd; and finding that I may as well alſo note them in other Counties hereafter, as let them alone: I have been perſwaded to add (becauſe perhaps a *Digreſſion* that may be acceptable to ſome) what I have met with in this *kind*, whether found under *Ground*, or whereof there yet remain any Foot-Steps above *it*; ſuch as ancient *Money*, *Ways*, *Barrows*, *Pavements*, *Urns*, ancient *Monuments* of Stone, *Fortifications*, *&c.* whether of the ancient *Britans*, *Romans*, *Saxons*, *Danes*, *Normans*. Of which in their order,

2. Leaving the *Antiquities* and Foundations of *Churches* and *Religious Houſes*, their *Dedications*, *Patronages*, and foundation *Charters*; with the *Pedigrees* and *Deſcents* of *Families* and *Lands*, *&c.* as ſufficient Matter for another *Hiſtorian*, and as too great a *Task*, and too much beſide my Deſign, for me to attempt. However, I have taken care in the *Map* prefix'd to this *Eſſay*, to put a *Mark* for the Site of all *Religious Houſes*, as well as ancient *Ways* and *Fortifications*, except *Brookeley* and *Saucomb*, both mention'd in the Catalogues of *Harpsfield* [u] and *Speed* [w], which I could not find out, though I ſought them diligently.

3. Of *Britiſh Antiquities* that are certainly ſuch, I have met with none here but ſome *pieces* of their *Money*; whereof, as much as I find not deſcribed before, I have caus'd to be delineated, *Tab.* 15. *Fig.* 19, 20, 21. Of which the firſt no doubt is a Coin of King *Cunobelin*, a King here in *Britan* at the time of the Birth of our Saviour CHRIST; it ſhewing a *Horſe*, and his *Inſcription* on one ſide, and an *Ear* of *Corn* and *CAMU* on the *Reverſe*; intimating the

[u] *Catalogus Ædium Religioſar. in fine Hiſt. Angl. Eccleſiaſt.* [w] *Hiſtory of* Great Britan. *lib.* 9. *cap.* 21. *ſub finem.*

place of its *Coinage* to be *Camulodunum*, the Royal City and Seat of *Cunobelin*.

4. *Camden*, 'tis true, has deſcribed a Coin of the ſame King, not differing in the *Reverſe* at all from this; but the *Inſcription* of ours varies from his, in that the final *Letter* O, is not plac'd in a line with the reſt of the preceding *Letters* under the *Horſe*'s Feet, but juſt before his *Breaſt*; the *Horſe* having alſo a *ſpica* or Ear of Corn (or ſome ſuch like thing) placed over his Back, *Fig.* 19. which is not to be found in any of *his*. This was dug up at *Wood-Eaton* in the Year 1676, near the Houſe of the Worſhipful *John Nourſe* Eſq; amongſt old *Foundations*, and kindly beſtowed on me by the ſame worthy *Perſon*.

5. At the ſame time and place the ſmall one next engraven, *Fig.* 20. was alſo dug up, but whether of the ſame King or no, does no where appear, it having nothing upon it but ſomewhat like a *Chalice*, and a crooked *Lineation*, under which there is alſo a *forked* kind of *Figure*, and a ſmall *Creſcent*; unleſs the *Affirmative* may be collected from the laſt of theſe, the *Creſcent* being to be met with on *Cunobelin*'s Money, as is plain from Mr. *Camden*, and ſo on the *Money* which he thinks carries the name of the City *Callena, alias Gallena*, now *Wallingford* [x]: Whereof though I can give no better account, I however thought fit to give a Draught of it, becauſe poſſibly it may meet with a *Reader* that can.

6. But for the *third* that ſeems adorned with two *Faces* on the *Obverſe*, and an ill ſhapen *Horſe* and a *Wheel* underneath him on the *Reverſe*, *Fig.* 21. dug up at *Little-Milton*, which was in the Poſſeſſion of my Reverend and Learned Friend, Mr. *Obadiah Walker* formerly the worthy Maſter of *Univerſity-College*; I take, notwithſtanding the want of an *Inſcription*, to be a Coin of *Praſutagus*, King of the *Iceni*, mention'd by *Tacitus*, who out of hopes of preſerving his *Kingdom* and *Houſe* quiet after his *Death*, made the Emperor *Nero*, and his own two *Daughters*, Co-heirs of his Fortunes. And that the two *Faces* are of him and his valiant Queen *Boodicia* [y], otherwiſe called by the ſame *Tacitus*, *Boudicia* [z], and *Voadica* [a], who in Revenge of her own *Daughters* ill Uſage by the *Romans*, after the Deceaſe of her *Husband*, raiſed an Army againſt them, utterly vanquiſh'd the Ninth *Legion*, ſack'd *Camulodunum*

[x] *See* Camden's *general Hiſtory of* Britan. [y] Taciti *Annalium*, *lib.* 14. *cap.* 31. [z] *Ibid. cap.* 35. [a] *In Lib.* Tacit. *de* Julii *Agricolæ vita*, *cap.* 16.

and

and *Verulam*, and ſlew no leſs than Seventy Thouſand of them [b].

7. And the Ground of this Conjecture, I take from the *Reverſe* with the *Horſe* and *Wheel* under him, moſt times found on the Coins of the ſame *Boodicia*, where her Name is ſtamp'd on them, as may be ſeen both in Mr. *Camden* and Mr. *Speed*'s Hiſtories: by the *Horſe* and *Wheel* intimating perhaps their great Strength to lie in their *Eſſeda*, a ſort of *Chariot* much uſed by the *Britans* in War, as is teſtified by *Cæſar* [c], and particularly by *Tacitus* of this very *Boudicea*, *viz.* that ſhe was drawn in a Chariot, with her *Daughters* placed before her [d], when ſhe came to fight *Suetonius* then *Proprætor* of *Britan*. Or elſe perhaps by this time having learned of the *Romans* the Neceſſity, and Convenience of making *military Ways*, and other Paſſages for Carriages through the *Woods* and *mariſh* Grounds; in memory of the Fact, after the manner of the *Romans*, as may be ſeen on the Money of *Trajan*, *Hadrian* [e], *&c.* they might put theſe *Horſes* and *Wheels* on their Coin.

8. Which is all I know remarkable in theſe *Britiſh Pieces*, but that they are all hollowed to a *Concave* on one ſide, and *Convex* on the other (a Concomitant of moſt, if not all *Britiſh Coin*) and that they are all *Gold*, or at leaſt *Electrum*, as moſt of the *Britiſh Money* we now find is, which is a ſort of *Metal* compounded of *Gold* and *Silver*, and this done either by *Nature*, or proportion'd by the *Artiſt*. That there is ſuch a *Metal* as *natural Electrum*, we have not only the Teſtimony of *Pliny* [f], who ſays, 'tis found commonly in Trenches and Pits. But of *Servius* [g], and St. *Iſidore* Biſhop of *Sevil*, the latter whereof aſſerts, that the *natural Electrum* is of great value, *Quod naturaliter inveniter in prètio habetur*, are his very Words, for that it is more pure than any other *Metal*, and that if Poiſon be put into a Veſſel made of it, it makes a hiſſing ſparkling Noiſe (as *Pliny* alſo witneſſes) and caſts it ſelf into *Semicircles*, reſembling *Rain-bows*, as well in Colours as Figure [h].

9. To which add the Teſtimony of *Peter Martyr*, a Perſon of unqueſtionable Credit and Veracity, who himſelf ſaw a great Piece of pure *natural Electrum*, ſo heavy,

[b] Taciti *Annalium*, *lib.* 14. *cap.* 33. [c] Jul. Cæſaris *Comment. de Bello* Gallico, *lib.* 4. [d] Tacit. *Annal. lib.* 14. *cap.* 35. [e] *Vid. Ducis* Croyiaci & Arſchotani *Numiſmata*, *Tab.* 36. & Lævini Hulſii *Imp.* Rom. *Numiſmatum ſeriem. in* Hadriano. [f] *Nat. Hiſt. Lib.* 33. *cap* 4. [g] Maur. Servii *Honorat. Comment. in* Pub. Virgilii, *Æneid. lib.* 8. *ad v.* 204. [h] Iſidori *Epiſt.* Hiſpalenſis, *Originum lib.* 16. *cap* 23.

that

that he was unable to move it one way or other, much leſs to lift it with both Hands from the Ground: they affirmed (ſays he) that it weighed above 300 Pounds, at eight Ounces to the Pound, and that it was found in the Houſe of a certain Prince, and left him by his *Anceſtors*. And albeit, that in the Days of the *Inhabitants* then living, it was no where digged, yet knew they where the *Mine* of it was, but were very unwilling to diſcover the Place; yet at length they did, it being ruinated and ſtopt with Stones and Rubbiſh; being much eaſier to dig than *Iron-mine*, and might be reſtored again, if *Miners*, and others Skilful therein, were appointed to work it [i].

10. Some ſuch *natural Electrum* ſeems alſo to be hinted in the *Civil Law*, and to have been mixed with *Silver*. *Neratius* reporting that *Proculus* gave Sentence, that it was no matter in a Legacy of *Electrine Veſſels*, how much *Silver* or *Electrum* was in them, but whether the *Silver* or *Electrum* exceeded, which might eaſily be perceiv'd by ocular Inſpection; or if ſo equally mixt that it could not be done, that then Recourſe was to be had to the *Eſtimate* of the *Teſtator*, amongſt which ſort of *Veſſels* he uſually accounted them [k]. Whence 'tis eaſy to collect, that the *Electrum* here ſpoke of, can be no artificial Mixture of *Silver* and *Gold*, again mixed with *Silver*; but a *natural Metal* before its mixture with *Silver*.

11. Moreover, that there is alſo an *artificial Electrum*, is as evident from the *Inſtitutes* of the Emperor *Juſtinian* [l], and *Q. Flor. Tertullian* [m]: made by intermingling *Gold* and *Silver*, according to the natural Mixture; which according to *Servius* and St. *Iſidore* [n], was of *Gold* in a *triple*, but according to *Pliny* [o] and Monſieur *Savot* [p], in a *quadruple* Proportion, to one of *Silver*; viz. 19 *Carats* $\frac{1}{5}$ of *Gold*, and 4 *Carats* and $\frac{1}{5}$ of *Silver*; *Or d' Allemaigne* holds the ſame Proportion [*]; which as the ſame *Savot* teſtifies, were the Proportions obſerved by the Emperor *Severus Alexander*, and *Lewis* the Twelfth of *France*, by an *Ordinance* made at *Blois*, of *Nov.* 19. 1506, for the *French* Gold.

12. Which very Proportions I ſhould be willing to think our *Britiſh* Coins to have; only I gueſs the *Britans* had, and made uſe of as little *Art* as might be: Wherefore I am

[i] Petri Martyris Anglerii *de Orbe Novo*, *Decad.* 1. *cap.* 4. [k] ff. *De Auro Argento*, &c. *Leg. Pediculis*, § Neratius. [l] *Inſtitut. de Rerum diviſione*, §. *Si duorum.* [m] Q. Septimii Florent. Tertulliani *Lib. adverſ. Hermog. cap.* 25. *& adverſus Praxean. cap.* 27. [n] *Locis ſupra citatis.* [o] *Loco citato.* [p] Lovis Savot *de la Matiere des Medalles antiques*, 2 *part. chapitre.* 9. [*] *Vid.* Cotgrave's *French Dictionary in verbo* Or.

enclined

enclined to believe them rather *native Electrum*, dug and coined thus according as they found it; either richer or poorer; for I have seen some pieces of this sort of *Money*, much richer in *Gold* than some others are. That *gold* and *silver Mines* were worked here in *Britan* in those ancienter Days, is plain out of *Strabo*, Φέρει δὲ σῖτον καὶ βοσκήματα, καὶ χρύσον καὶ ἄργυρον καὶ σίδηρον*. As also from *Tacitus*: *Fert Britannia* (says he) *Aurum & Argentum, & alia Metalla, pretium victoriæ* [q]. And Prince *Galgacus* chief Captain of the *Britans*, now beat back as far as Mount *Grampius* in *Scotland*, in his Speech (before the Fight with the Proprætor *Agricola*) exciting them to Indignation against the *Romans*; amongst other things tells them, that these were the *Men* that had taken from them their fertile *Soil*, their *Mines*, and trading *Towns*: *Neque enim Arva nobis, aut Metalla, aut Portus sunt, quibus exercendis reservemur* [r]. Now all *Gold* whatever containing some *Silver* more or less, and the *Britans* being not able to refine it then, as in after Ages, were necessitated to coin *Electrum* after this manner.

13. That they had and coined *Silver* in these early times, is also plain from Mr. *Camden*, Mr. *Speed*, &c. who have given us Draughts of *silver* Coins of *Cunobelin*, *Venutius* King of the *Brigantes*, and *Caractacus* King of the *Silures*, both which make not a little for the Reputation of my Conjecture §. 62. and 63 of the sixth Chapter of this *Essay*; the *Mines* there mention'd, in all Probability, being some of those spoken of by *Tacitus*, and perhaps first belonging to the *ab-original Britans*, and after to the *Romans*.

14. To this if it be objected, out of *Cæsar*'s *Commentaries*, that the *Britains* then used only *Copper* (and that imported) and *Iron-rings* instead of *Money* [s]; and that this *Gold* might either be also imported, or the *Mines* discover'd after the Conquests of the *Romans*: It may rationally be answer'd, that *Cæsar*'s Account of the State of *Britan* (as has been shewn also before in another Case, *chap.* 3. §. 2. of this *Essay*) is as imperfect as his *Victories* or *Travels* in it were. For we find in Mr. *Speed* a *gold* Coin of King *Cassivellaun*, who was King here in *Britan* at *Cæsar*'s Arrival; beside the *Romans* came then not to enrich, but to spoil *Britan*, how unlikely it is therefore they should supply them with *Gold*, or find them *Mines* so early, let the Reader judge.

[q] Tacitus *in vita* Julii Agricolæ, *cap.* 12. [r] *Ibid. cap.* 31. [s] Julii Cæsar. *Comment. de Bello* Gallico, *lib.* 5. * *Geograph. lib* 4. *vid.* Sherringh. *de Orig. Gent. Angl.* p. 6.

15. Where-

15. Whereunto it may be added (as *Tacitus* informs us) that *Cæſar* rather diſcovered than conquered *Britan*; that he rather frightened the *Inhabitants* on the Shores, than got Footing there: *Quanquam proſpera pugna terruerit Incolas, ac littore potitus ſit, poteſt invideri oſtendiſſe poſteris, non tradidiſſe* [t], are his very Words of him: And that whatever he pretended at *Rome*, he got little here but dry Blows, and the Honour of having led an *Army* hither, Μηδὲν μήτε ἐκ τῆς Βρεττάνιας, μήτε ἐαυτῷ, μήτε τῇ πόλει κατορθώσαντα, πλὴν τῆς ἐπαλξέως ἐν αὐτῇ δόξης, ſays *Dion Caſſius* of his firſt *Expedition* [u]. And *Tacitus* rather more than leſs of his *ſecond*, who brings in *Caractacus* encouraging his *Britiſh Army* to recover their Liberty; and in order thereunto, calling upon the Names of their *Anceſtors*, *Qui Dictatorem* Cæſarem *pepulliſſent*, that had driven the Dictator *Cæſar* out of the Land [w].

16. Add further hereunto, what *Strabo* delivers concerning his *Expeditions* into *Britan*, Οὐδὲν μέγα διαπραξάμενος, οὐδὲ προελθὼν ἐπὶ πολὺ τῆς νήσου, that he did nothing *great*, nor went far up into the *Iſland* [x]. And that *Tacitus* further confeſſes him beaten hence: for ſpeaking concerning the *Arguments* the *Britans* uſed amongſt themſelves to perſwade the *Revolt* under *Voadica*, he ſays, they brought this as a main one, that could they ſhew but the Courage of their *Anceſtors*, *Receſſuros* (*i. e.* Romanos) *ut* Divus Julius *receſſiſſet* [y]: intimating, that his ſuddain Departure hence was little better than a *Flight*. Not to mention what *Quinctilian* ſays of one *M. Aper*, that he met with an ancient *Britan*, that avowed to him, that he was in the *Britiſh* Camp when they beat *Cæſar* from the Shore [z]; and that *Lucan* ſays of him expreſly,

Territa quæſitis oſtendit terga Britannis [a].

17. After whoſe Departure, the *Britans*, ſays *Tacitus*, enjoy'd a long Peace, lying forgotten by the *Romans* all the Days of *Auguſtus*, *Tiberius*, and *Caligula* [b]; ſo unlikely were the *Romans* to help *Caſſivellaun* or *Cunobelin* to this *Gold* or *Electrum*: Nor indeed is it probable they would do it after, in the time of *Claudius*, when they had Footing here; not only for that *Money* and *Riches* are the Incentives

[t] Tacitus *in vita* Julii Agricolæ, *cap.* 13. [u] Dionis Caſſii, *Rom. Hiſt. lib.* 39. [w] Taciti *Annalium*, *lib.* 12. *cap.* 34. [x] Strabon. *Geograph. lib.* 4. [y] Tacitus *in vita* Agricolæ, *cap.* 15. [z] Fab. Quinctiliani *de Oratoribus Dialog. cap.* 17. [a] An. Lucani *de Bello Civili*, *lib.* 2. *v.* 572. [b] Tacitus *in vita* Agricolæ, *cap.* 13.

to

to *Rebellion*, and the very Sinews of *War*; but becauſe had they thought it fit, either then or before, we ſhould certainly have heard on't in ſome of their *Writings*.

18. Of *Roman Antiquities* yet remaining in this County, (to wave the Stories of *Molmutius* and *Beline*) the moſt conſiderable of any, are their *publick Ways*, whereof though there are ſeveral, and of different *Forms* and *Materials*, and thoſe too broken down, and diſcontinued by Plowing and other Accidents; yet by their *Pointing*, and after a diligent *Scrutiny*, I hope I ſhall render at leaſt a probable Account of them.

19. But before I deſcend to particulars, it will be neceſſary I think to acquaint the *Reader*, that of theſe amongſt the *Romans* ſome were called *Publick*, κατ' ἐξοχὴν, and others *Vicinal* [c]. And that the firſt ſort of theſe were otherwiſe called (as reckon'd up by *Tabvetius* [d]) by theſe other different Names, *Regiæ* (by the *Greeks* βασιλικαὶ) *Prætoriæ*, *Conſulares*, *Militares*, *Privilegatæ*, *Illuſtres*, *Frequentatæ*, *Celebres*, *Eximiæ*, *&c.* and after by the Conqueror *William*, in the Laws he confirmed of St. *Edward*'s, *Chemini majores*, from the *French Chemin*, as may be ſeen by the Laws of the ſame King *Edward* [e]: of which ſort we had in all but four in *England*; *Watling-ſtreet*, the *Foſs*, *Ikenild-ſtreet*, and *Erming-ſtreet*; whereof two ſtretched themſelves from *Sea* to *Sea* the *Length* of the *Land*, and the two other the *Breadth*; all Miſdemeanors committed in theſe, falling under the Cognizance of the King himſelf. *Pax autem quatuor Cheminorum* (*intellige majorum*) *ſub majori judicio continetur* [f].

20. Beſide theſe, there were many others of like *Erection*, though of leſs Extent, by the ancient *Romans* called *Vicinales*, *quod in vicos ducebant*, *i. e.* from *Colony* to *Colony*, from *Station* to *Station*; which were alſo *publick*, if compared with the more *private Agrarian Ways* [g]. And theſe were after by King *William* called *Chemini minores*, and were the Ways (as expreſly deſcribed in the Laws of St. *Edward* the Confeſſor) *de Civitate ad Civitatem*, *de Burgis ad Burgos*, *ducentes*, *per quos Mercata vehuntur*, *& cetera negotia fiunt*, *&c.* all Miſdemeanors committed in theſe, falling under the Cognizance of the Earl, or chief military Governor of the County, or of his *Vice-comes* or *Sheriff*.

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[c] ff. *Ne quid in loco publ. vel itinere fiat.* L. *Prætor ait*, §. *viarum.* [d] Julius Tabvet. *in Ephemerid. Hiſtor.* [e] Ἀρχαιονομία Gul. Lambard. *inter* L. L. *boni Regis* Edoard. *L. L.* 12, 13. [f] *Ibidem.* [g] ff. *Ne quid in loco*, *&c.* L. *&* §. *quibus ſupra.*

21. It will alſo be expedient to inform the *Reader*, that both the *Majores* and *Minores* were ſometimes *raiſed*, and ſometimes *level* with the Ground [h], and ſometimes *trenched*; and the *raiſed ones* ſometimes only of *Earth*, and ſometimes *paved* [i], eſpecially in moiſt and boggy Grounds; though it muſt alſo be acknowledged that we ſometimes find them *paved*, where there was little need: which I gueſs might be done to exerciſe the *Soldiers* and and *common People* of the Country, leaſt by lying idle they ſhould have grown mutinous, and affected Alterations in the State. But where they were indeed laid through *Meers* and low Places, and Neceſſity compelled them to raiſe and *pave* them, we have the exact Method of making them, laid us down by *Statius* [k],

Hic primus labor inchoare Sulcos,
Et reſcindere limites, & alto
Egeſtu penitus cavare terras:
Mox hauſtas aliter replere foſſas
Et ſummum gremium parare dorſo,
Ne nutent Sola, nec maligna ſedes
Et preſſis dubium Cubile ſaxis.

i. e. that they firſt laid out the *Bounds*, then dug *Trenches*, removing the *falſe* Earth: then filled them with *ſound* Earth, and paved them with Stone, that they might not ſink or otherwiſe fail.

22. Of the four *Baſilical*, *Conſular*, or *Prætorian Ways*, *Chemini majores*, I have met with but one that paſſeth this County, the Diſcovery whereof yet I hope may prove acceptable, becauſe not deſcribed before, or its Foot-ſteps any where noted by Sr. *H. Spelman*, Mr. *Camden*, or any other *Author* that I have read or could hear of: whereat indeed I cannot but very much wonder, ſince it is called by its old Name at very many Places [*Ikenildway*] to this very Day. Some indeed call it *Icknil*, ſome *Acknil*, others *Hackney*, and ſome again *Hackington*, but all intend the very ſame *Way*, that ſtretches it ſelf in this County from North-eaſt to South-weſt; coming into it (out of *Bucks*) at the Pariſh of *Chinner*, and going out again over the *Thames* (into *Berks*) at the Pariſh of *Goreing*, lying within the County in Manner and Form, and bearing to the *Pa-*

[h] Nich. Bergier *Hiſtoire des grands Chemins de L'Empire*, *Liv.* 2. *chapitre* 17. [i] *Ibid. chapitre* 7. [k] Papin. Surc. Statii Silvar. *Lib.* 4. *in via* Domitian.

riſhes

riſhes and *Villages* placed on each Hand, as deſcribed in the *Map* prefixed to this *Eſſay*, by two ſhaded parallel lines, made up of *Points*, which I have choſe, to ſhew that this way is not caſt up in a ridged Bank, or laid out by a deep Trench, as ſome others are; deſcribed alſo in the *Map* by two continued parallel *Lines*, that the *Reader*, or ſuch as pleaſe to view them hereafter, may know where to expect a *Bank* or *Trench*, and where no ſuch matter.

23. The Reaſon, I ſuppoſe, why this *Way* was not raiſed, is, becauſe it lies along under the *Chiltern* Hills on a firm faſt Ground, having the Hills themſelves as a ſufficient Direction: Which is all worth Notice of it, but that it paſſes through no *Town* or *Village* in the County, but only *Goreing*; nor does it (as I hear) ſcarce any where elſe, for which Reaſon 'tis much uſed by Stealers of Cattle: and ſecondly, that it ſeems by its *Pointing* to come from *Norfolk* and *Suffolk*, formerly the Kingdom of the *Iceni*, from whom moſt agree (and perhaps rightly enough) it received its Name *Icenild*, or *Ikenild*; and to tend the other way Weſt-ward, perhaps into *Devon-ſhire* and *Cornwall*, to the *Lands* End. So much miſtaken is Mr. *Hollinſhed* in his Deſcription of this Way [l], who fancy'd it began ſomewhere in the *South*, and ſo held on toward *Cirenceſter*, and thence to *Worceſter*, *Wicomb*, *Brimicham*, *Lichfield*, *Darby*, *Cheſterfield*, and croſſing *Watling-ſtreet* ſomewhere in *York-ſhire*, ſtretched forth in the End to the Mouth of the *Tine* at the main *Sea*. Yet the learned Mr. *Dugdale* [m] ſeeming to favour this Opinion, in his Deſcription of *Ickle-Street* that paſſes through *Warwick-ſhire*, I ſuſpend my Judgment 'till I have ſeen more of both.

24. Amongſt the many *Vicinal Ways*, or *Chemini minores*, we have but one neither here, of all thoſe mentioned by *Antoninus* in his *Itinerary*, and that is part of the *Gual-hen*, which ſignifies in Britiſh *antiquum Vallum*, that went between *Pontes*, now *Colebrook*, and the old City *Caleva*, or rather as it was written in the ancienteſt Books, *Gallena* [n]; to which our Fore-fathers adding the Word, *Ford*, by Reaſon of the Shallowneſs of the River there, and changing the Letter *G* into *W* (a thing frequently done by the *Saxons* [o]) it was at length called Wallengaford, now more contractedly *Wallengford*.

[l] Raph. Holinſhed's *Deſcription of* Britan. *lib.* 1. *cap.* 19. [m] *Antiquities of* Warwickſhire *in* Barlich-way *Hundred. pag.* 568. [n] *See* Burton's *Commentary on* Antoninus *his* Itinerary. *Itinere* 7. *a Regno* Londinium. [o] *See* Rich. Verſtegan's *Antiquities of the* Engliſh *Nation*, *cap.* 5. *ſub finem.*

25. Which 'tis plain ſtood not formerly where it now doth, this old *Vallum*, or high ridged Way, pointing down from between *Mungewell* and *Nuneham-Warren* on *Oxford-ſhire* ſide the River, as deſcribed in the *Map*, near a Mile below the Town as it is now ſeated; whereabout, in all likelihood, on the other ſide the River ſtood, that part of the City containing the 12 Pariſhes, laid deſolate by a great Plague that reigned there, *Temp. Edward* III. Which great Blow it could never recover (though much endeavoured by *Rich.* 2.) the Bridges of *Abington* and *Dorcheſter* being alſo about that time built, which diverted the Trade another way, whereas before there was no Paſſage over the *Thames* but here at *Wallengford* [p].

26. This *Vallum* or ridged Bank, now called *Grimes-dike*, as it runs towards *Pontes*, yet remains very high, but is but ſingle till it comes to the Woods near *Tuffield*, alias *Nuffield*, where it appears double with a deep *Trench* between, like the Ways near *Piperno* and at *Porto* in *Italy* [q]; which induces me to believe, that that part next *Wallengford* was once ſo too, and therefore ſtill call'd *Grimes-ditch*, the *Trench* in all likelihood being filled up with one of the *Banks* thrown into it, upon the Increaſe of *Agriculture*, perhaps at firſt deſigned only to carry off the *Water*, and the two *Banks* on each ſide for the *Carriages* 'twixt the *Stations* *; thoſe from *Wallengford* to *Pontes* going upon one *Bank*, and thoſe from *Pontes* to *Wallengford* upon the other, ſo that there could be no Diſturbance by meeting on the Way. From *Tuffield*, I was told, it held on its Courſe through the thick Woods, and paſſed the *River* below *Henly* into *Berk-ſhire* again, but the Woods ſcarce admitting a *foot* Paſſage, much leſs for a *Horſe*, I could not conveniently trace it any further.

27. There ſeems alſo to have been caſt up another *Roman Way*, between the old City of *Alceſter*, in the Pariſh of *Wendlebury* (of which more anon in its proper place) and the *City* of *Calleva*, whereof there is part to be ſeen to this Day running quite croſs *Otmoor*, as deſcribed in the *Map*, and coming out of the *Moor* under *Beckley* Park-wall; which 'tis plain, has been paved (as indeed it had need) by the Stones yet found upon, and about the *Ridge*, and no where elſe on the *Moor*. From *Beckley* it paſſes on to, and may plainly be ſeen in the *Wood* near *Stocker*'s, where cutting the

[p] *Vid.* Lelandi *Comment. in Cygneam Cantionem in verbo Calcua.* [q] *Vid.* Leon. Bapt. Alberti *de re Ædific. lib.* 4. *cap.* 5. * *Ibidem.*

Lon-

London Road to *Worceſter*, it goes plainly through the *Fields* to *Stafford-Grove*, and thence over *Bayard*'s Watering-place, toward *Heddington* Quarry-pits, leaving *Shotover-hill* on the *left*, and the *Pits* on the *right* Hand.

28. At the Foot of *Shotover-hill* it enters *Magdalen College* Coppices, and thence through *Braſen-noſe College* Coppices, over the *Eaſtern* part of *Bullington-green*, as I gather by its pointing, for it is not to be ſeen there, it having been Plowed down as well in the *Green*, as *Fields* thereabout, as may be ſeen by the Marks of the *Ridge* and *Furrow* yet remaining upon it; whence I gueſs it paſſes on towards the two *Baldens*, and ſo for *Wallengford*; going over the River at *Benſon*, alias *Benſington*, where it may be ſeen again running *Weſt* of the *Church*, and is there called by the Name of *Medlers-bank*.

29. If it be asked why this Way 'twixt *Wallengford* and *Alceſter* was laid ſo crooked? it is plain, 'twas for the Convenience of taking *Oxford* in the way as Occaſion ſhould ſerve. For though I could not diſcover the *diverticulum* tending toward *Oxford* in the Way from *Wallengford*, yet in the Way from *Alceſter* it remains at ſome places yet plain and evident, coming out of the main Road about the Pariſh of *Beckley*, and paſſing more *Weſtward* through *Stow-wood*, and more particularly through the Grounds ſtill called *Principal*, (for that they were formerly the *Principal Coppices* before the diſ-forreſting that *Wood*) where the Way is to be ſeen entire and perfect, having formerly been *paved*, as appears by a *Ditch* cut through the *Bank* in a Diviſion of theſe Grounds, where the Stones lie *archwiſe* in form of the *Bank*, there being none neither like them in the *Fields* thereabouts.

30. Coming almoſt as far as *Elsfield*, where it is now deeply trenched between two *Banks*, like ſome part of *Grimes-dike* mentioned above, it is broken down and diſcontinued, I ſuppoſe by *plowing*, but points juſt upon *Heddington*, whereof the *hollow Lane* aſcending into the *Town*, near Mr. *Pawling*'s Buildings, perhaps may be a part; and the *deep way* between two green Banks a little on this ſide *Heddington*, another; and the hollow Way on the Brow of *Heddington-hill*, another piece of it. Out of which there ſeems alſo another Way to have branched about the Top of the Hill, which paſſing through the Grounds 'twixt that and *Marſton-lane*, where it is plain to be ſeen, by its pointing ſhews as if it once paſſed the *River* above *Holy-well*

Church

Church, ſtraight upon St. *Giles*'s, or the old *Belloſitum*, now *Beaumont*; where-about *Thomas Rudburn* in his *Chronicon Hydenſe*, ſays, anciently before its Reſtoration by *Ælfred*, the *Univerſity* was ſeated: *Quæ Univerſitas* Oxoniæ *quondam* (ſays he, having before diſcourſed of its *Reſtoration* by *Ælfred*) *erat extra Portam Borealem ejuſdem Urbis, & erat principalis Eccleſia totius Cleri, Eccleſia Sancti* Ægidii *extra eandem portam* *. Which two put together, perhaps may make as much for the *Antiquity* of this place, as need be brought for it.

31. Beſide, this *Branch*, out of the Way 'twixt *Alceſter* and *Wallengford*, pointing toward *Oxford*, I muſt not forget there is another that ſeems deſignedly made for a Paſſage hither immediately from *Alceſter*, whereof there is a part ſtill remaining about *Noke*, whence it paſſes through the *Fields* to the *purlue* Grounds, where it cuts the *Worceſter* Road, and ſo into *Drunſhil*, formerly a part of the *Foreſt* of *Stow-wood*, where about forty Years ſince there were ſeveral *Roman Urns* and *Coins* dug up; beyond which place I could not trace it, it being Plowed down in the following Grounds, which yet is the beſt Conjecture I can make of it, unleſs we ſhall rather ſay it was only laid this way to avoid *Otmoor* in the *Winter* Seaſon, when it is uſually under Water; and that it turned about again (as indeed it ſeems to point) and joyned with the forementiond to *Wallengford* and *Oxford*.

32. Nor muſt it be omitted, that the People hereabout call that part of this Way that lies through *Otmoor*, by the Name of *Akeman-ſtreet*, ſuppoſing it to have come from *Wallengford* and to have paſſed on by *Alceſter* to *Banbury*; to which Name of theirs, and Courſe of the Way, Mr. *Camden* ſeems to afford his tacit Conſent [r]: wherein I wonder they, but more that he, ſhould be ſo much or'e-ſeen, ſince he could not but know, that neither End of ſuch a *Way* could tend toward *Bathe*, the old Ace-manner-ceaſtep, or *Urbs Ægrotorum hominum*; nor they, that the true Ace-manner-ſtpæt comes near indeed to *Alceſter*, but paſſing through the *County* quite another Way, both the *City* and Way leading to it, having their Names from the *ſick Perſons*, or *Men* with *Aches*, travelling on it thither.

33. The true *Akeman-ſtreet* then, or as ſome call it *Akeham-ſtreet*, and others *Akerman-ſtreet*, coming out of

* *Chronicon. Hydenſe MS. inter* κειμήλια *Oxonienſ.* [r] *Vid.* Camd. *Britan. in Comit.* Oxon.

Buck-

Buckingham-ſhire; enter this *County* at a Village called *Black-thorn*, whence it paſſes on without any raiſed Bank, cloſe by *Alceſter* as far as *Cheſterton*, as deſcribed by the ſhaded or *pointed* Lines in the *Map*: whence it goes to *Kirklington* Town's-end, and ſo over the River *Cherwell* near *Tackley*, and thence in a ſtraight Line to *Woodſtock-Park*, which it enters near *Wooton-gate*, and paſſes out again at *Mapleton-well* near *Stunsfield* Stile, whence it holds on again as far as *Stunsfield*; and all this way on a raiſed *Bank*, as deſcribed in the *Map* by two parallel Lines; where breaking off (but ſtill keeping its Name) it goes on over the *Evenlode* to *Wilcot*, and ſo to *Ramſden*; a little beyond which *Village*, at a place called *Witney-green*, it may be ſeen again for a little way; but from thence to *Aſtally*, over *Aſtall-bridge*, and ſo through the Fields till it comes to *Bradwel-grove*, it is ſcarce viſible, but there 'tis as plain again as any where elſe, holding a ſtraight Courſe into *Glocester-ſhire*, and ſo towards *Bathe* the old *Akemanceſter*.

34. And out of this *Akemanſtreet*, as moſt other ſuch ways, there are ſeveral *Branches*, *viz.* two near *Kirklington*; one at the *Town's-end*, which though preſently diſcontinued, yet points juſt upon the *Port-way* running *Eaſt* of *Northbrook*, the two *Heyfords*, *Sommerton*, and *Souldern*, for ſix Miles together; and another, that by its pointing ſeems to have come out of *Akemanſtreet*, nearer the place where it paſſes the River *Cherwell*, croſſing the *Port-way*, and running at the broadeſt place, ſcarce a Mile diſtant from it, as far as *Fritwell*, where on the *North* ſide of the *Town* it inclines toward the *Port-way*, as if joyned with it again ſomewhere about *Souldern*, both of them pointing upon the *Fortifications* called *Rainsborough* (perhaps a Corruption of *Romans-borough*) near *Charleton* in *Northampton-ſhire*: whence in all probability it went to *Vennonis*, alias *Bennonis*, an old *Roman Station*, by the *Saxons* after called *Clayceſter*, in the Confines of *Warwick* and *Leiceſter-ſhires*; and ſo on to the *Ratæ* of *Antoninus*, or *Ragæ* of *Ptolomy*, now *Leiceſter* [s].

35. This ſecond *Branch* of *Akemanſtreet*, about *Fritwell* they call *Wattle-bank*; but in an old *Terrier* of Sir *Thomas Chamberleyn*'s, it is called *Aveſdich*, perhaps a Corruption of *Offa*'s-*ditch*, the great King of the *Mercians*, whoſe *Kingdom* might at firſt be terminated here, though I find he extended it at length as far as *Benſon*, as thinking

[s] *Vid.* Ptolemæi *Geograph. Edit. per* Pet. Bertium.

it

it for his *Honour* and *Profit* both, that the *West-Saxons* ſhould have nothing *North* or *East* of the *Thames*[t]. Or if ancienter than *Offa*, it might perhaps be a *prætentura*, or Fore-fence of the *Romans*, raiſed againſt the *Britans* (or *vice verſa*) who might poſſibly be poſſeſt of the *Port-way* before.

36. Yet I rather believe they might be both of them *ancient Ways*, though ſo near together, for we read that the *Romans*, where the *Way* was not well laid out, or was *longer* than needed, did commonly (to keep the People from *Idleneſs*, and the *Soldiers* from *Mutinies*) lay them *ſtraiter* and better; as *Gallen* witneſſeth that *Trajan* did in *Italy*: ἔνθα δ' ἐνθὺ μήκης ὁ ὁδὸς ἦν, ἐνταῦθα σύντομον ἑτέραν τεμόμενος[u], *i.e.* that where the Way was *longer* than needed, he cut out another *ſhorter*, which poſſibly might alſo be done *here*, the *Port-way* being much ſhorter and more direct than *Aveſdich*, to the place whither they both ſeem to hold on their Courſe: which may alſo be the Reaſon of the two *Ikenild Ways* under *Stoken-Church* Hills, there being about *Lewkner* and *Aſton-Rowant*, an upper and lower *Ikenild Way*.

37. Beſide theſe, there are yet two other *Branches* coming out of *Akeman-ſtreet*; one in *Woodſtock-Park* near Col. *Cook*'s Lodge, whence it runs toward the Trees called *Oak* and *Aſh*, not far from *Glympton*, where it is diſcontinued; and where to be met with again I could no where find; ſo that all I can ſay of it is, that towards the End it points *North-weſt* towards *Enſton* and *Chippingnorton*, and ſeems to have cut another ſuch like Way near *Upper-Kiddington*, which has its *Period* there, as far as I could learn, but runs as far as *Ditchley* the other way, where the *Ridge* turns to a *Ditch* by the Name of *Grimes-dike* (as that near *Wallengford*) and gives Name I ſuppoſe to *Ditchley* that ſtands upon it, a Seat of the Right Honourable *Edward Henry* Earl of *Lichfield*'s, whence it runs in that manner fair and viſible for about half a Mile; but before it comes to *Charlbury*, turns again to a *Ridge*, very high and lofty at a place called *Baywell*, where it enters into *Cornbury-Park* but ſcarce viſible there; yet as I was told, to be found again in the *Woods* beyond it, and that it *pointed* toward *Ramſden*, where at firſt (as I gueſs) it branched out of *Akeman-ſtreet*.

[t] *Vid.* Camd. *Britan. in Com.* Oxon. [u] Γαλλήνε διεξόδους μεθόδου, βιβ. δ' κεφ. ή.

38. But

38. But whether *this*, and the other before-mentioned tended, is hard to gueſs, no *Roman Station* lying near this place, unleſs I may be allowed to conjecture by their *pointing*, at a great Diſtance, which muſt needs be very uncertain. However, becauſe a Gueſs perhaps may better pleaſe than to ſay nothing, I conjecture the Way by *Ditchley* may tend either toward *Vennonis*, and *Ratæ*, as the *Port-way* and *Aveſdich* afore-mention'd were thought to do, or elſe toward *Tripontium*, now *Toucester* in *Northampton-ſhire*; and that from *Woodſtock* toward *Manduеſſedum*, now *Mancheſter* in *Warwick-ſhire*, or rather the old *Etocetum*, now the *Wall* in *Stafford-ſhire*.

39. Which are all the *raiſed Banks* or deep *Trenches* that I met with in *Oxford-ſhire*, except the two *Banks* with a *Trench* between them (therefore called *Dike-hills*) South and by Weſt of *Dorcheſter*, which I cannot imagin part of any *Roman Way*, becauſe extended only as a *String* to a great *Bow* of the River *Iſis*, as deſcribed in the *Map*; but rather a *Fortification*, ſuch as *P. Oſtorius* Proprætor here in *Britain* under *Claudius*, is ſaid by *Tacitus* to have made on the Rivers *Antona* and *Sabrina* *; or elſe ſome of the Outworks of the Fortifications on *Long-Witenham* Hill on the other ſide the Water, which perhaps was the *Sinnodunum* [w] of the ancient *Britans*.

40. Nigh to the *raiſed Ways* thus caſt up by the *Romans*, they placed the *Tumuli*, or Sepulchres of their *Generals*, or ſuch other valiant Perſons, as died in the Wars; it being forbid by the Law of the 12 *Tables* to bury within their *Cities* or *Stations*. *Hominem mortuum in Urbe ne ſepelito neve urito* [x]: And by a *penal Reſcript* of the Emperor *Hadrian* [y]. Now the Reaſon why they placed them on the *military Ways*, rather than elſewhere, is given us by *Camden*, *viz.* that *Paſſengers* might be put in mind, that as theſe here buryed were ſometimes mortal Men, that they themſelves are no better now [z]: whence perhaps the *Formula* ſtill uſed on *Tombs*, *Siſte Viator*, and *monumentum a monendo*.

41. But I gueſs there could not but be ſomewhat more in't, for as it was accounted the greateſt *Diſhonour* imaginable to lie *unburyed*, ſo it was a great *Reputation* to the

* Taciti *Annal. lib.* 12. *cap.* 31. [w] *Vid.* Leland. *Comment. in Cygneam Cant. in verbo* Sinnodunum. [x] *Ex Legibus* 12 *Tab. de Jure Sacrorum. vid. etiam* Cicer. *de* L. L. *lib* 2. [y] ff. *De Sepulchro violato* L. *Prætor ait*, §. Divus Hadrianus. [z] *Vid.* Camdeni Britan. *in Com.* Wilts.

Perſon deceaſed to be cover'd with a large *Tumulus*, which 'tis like might in part at leaſt be the Reaſon of their placing them ſo near the *publick Ways*, that *Paſſengers* might continually add to the *Heap*, it being look'd upon as *Piety* in them ſo to do; nor ſufficed it to throw on a ſingle Handful of Earth, but (as may be collected from *Horace*) uſually three. For in *Architas*'s Requeſt to the *Mariner*, that he would not ſuffer his Body any longer to lie on the *Shore* unburied, he makes it part of his *Plea*, that notwithſtanding the ſwift Motion of Seamen, yet he might find time enough to throw 3 Handfuls of Duſt.

Quanquam feſtinas, non eſt mora longa, licebit
Injecto ter pulvere curras [a].

42. Which way of *Burial* under *Conical Hillocks*, whether naturally compoſing themſelves into that *Figure* by the Fall of the *Earth*, or deſignedly ſo made by the *Soldiers*, was ſure very ancient; for from their being placed without *Cities*, I find them called by the *Greeks*, ἐπιπτέλιοι λόφοι, and upon *High-ways*, Ἑρμαῖοι, for that the God *Mercury* had the Charge of the *Ways*; as his other Name Ἐνόδιος likewiſe imports.

Ἠλὴ νωΐτερ πόλιος ἔτι Ἑρμαῖος λόφος ἐσσί [b].

We find alſo *Achilles* in *Homer*, complaining how ſmall a *Tumulus* he had made for his beloved *Patroclus*,

Τύμβον δ' ὑμάλα πολλὸν ἐγὼ ποιήσαμεν αἶαν
Αλλ' ἐπιποιήσει, λοῖον, ὃς κ.τ.λ.

and intreating *thoſe* that come after to raiſe it higher, which Deſire of his was piouſly performed by the ſucceeding *Greeks*, who raiſed it to ſo great a height, that they deſigned it for a Sea-mark to thoſe that ſhould ſail the *Helleſpont*.

μέγαν δ' ἀμύμονα τύμβον
Χεύαμεν Αργείων ἱερὸς στρατὸς κ.τ.λ. [d].

and this I find here, and at all other places, they always performed Χεύαντες δὲ τὸ σῆμα [e]; and ſo again in the Erection of

[a] Q. Horatii Flac. *Carminum, lib.* 1. *Ode.* 28. [b] Hom. *Odyſſ. βιϛ. ω'. v.* 47. [c] Hom. *Iliad. βιϛ. ψ'. v.* 245. [d] Hom. *Odyſſ. βιϛ. α'. v.* 80. [e] Hom. *Iliad. βιϛ. ψ'. v.* 257.

per-

the *Tumulus* over *Hector* [f], by pouring on *Earth* or *Stones*; the Word χέειν, as *Euſtathius* informs us, being ſometimes uſed abſolutely, *pro* γῆν ἐπιχεῖν τοῖς τεθνεῶσι [g]. *i. e.* (in the moſt critical Senſe) for *humare*.

43. It was alſo very ancient amongſt the *Romans*, not only for *Princes*, as *Virgil* witneſſes,

fuit ingens monte ſub alto
Regis Dercenni *terreno ex aggere buſtum.*
Antiqui Laurentis, opacaque Ilice tectum [h].

with whom agrees *Lucan*,

Et regum cineres exſtructo monte quieſcunt [i].

but alſo for meaner Perſons; for thus we find *Æneas* burying his Nurſe *Cajeta*,

At pius exequiis Æneas rite ſolutis,
Aggere compoſito tumuli, &c [k].

Nay ſo very ancient was it, that *Pliny* ſays expreſly, it was long in uſe amongſt them before *Burning*, *Ipſum cremare apud* Romanos *non fuit veteris inſtituti; terra condebantur*, *i. e.* that they always *interred* them, till they began to underſtand that the Bodies of their *Men* ſlain in the *Wars* afar off, were ſometimes taken forth from under their *Tumuli*, and barbarouſly abuſed [l], as *Florus* acquaints us the *Germans* ſerved the Body of the Conſul *Varus*, amongſt other Indignities offer'd the *Romans*: *Ipſius quoque Conſulis Corpus, quod militum pietas abdiderat, effoſſum* [m].

44. To prevent which *Barbarity* for the future, they ordained *Burning* before *Tumulation*, as was uſed alſo amongſt the *Greeks*; for we find in *Homer*, that the Body of *Hector* (as well as *Patroclus*) was firſt burned, and his calcined white Bones then gathered by his *Friends* and put in an *Urn*.

Ὀστέα λευκὰ λέγοντο κασίγνητοι ἑταροί τε [n], *&c.*

and then follows their raiſing a *tumulus* over him, which it ſeems was of Stones,

αὐλὴν ὑπερθε
Πυκνὸν λᾶας χεῦαν μεγάλοισι [o].

[f] *Ibid. lib. ω.* v. 801. [g] *Vid.* Euſtathii *Schol. in* Hom. [h] *Æneid. lib.* 11. *v.* 850.
[i] An. Lucani *Pharſalia, ſive de Bello Civili, lib.* 8. *ſub finem.* [k] *Æneid. lib.* 7. *v.* 5.
[l] Plin. Secund. *Nat. Hiſt. lib.* 7. *cap.* 54. [m] L. An. Flori *Rerum* Rom. *lib.* 4. *c.* 12.
[n] Hom. *Iliad. lib. ω. v.* 739. [o] *Ibidem v.* 797, 798.

and yet expreſſed as where made of *Earth*, by pouring them on, Χεύαντες δὲ τὸ σῆμα [p].

45. It was an uſual Cuſtom alſo amongſt the *Northern* Nations, in their ſecond *Age*, which they called **Hoigold**, or **Hoelſt tiid**, *Tumulorum Ætas*; thus to bury their dead under earthen Hillocks, *Arenam & terram exaggerando uſque dum in juſtam monticuli exſurgerent altitudinem*, ſays *Wormius* of the *Danes* [q]; and of theſe he ſays they had two ſorts, the *Rudiores*, which, *ex ſola terra in rotunditatem & Conum congeſta conſtabant*, *i. e.* that were made only of *Earth*, caſt up in a round *conical* Figure, which were ſet up in Memory of any ſtout *Champions* that had deſerved well of their *Country*. And the *Ornati*, which were encompaſſed with a *Circle* of *Stones*, ſet up only for their *Generals*, or ſome other great *Perſons* [r].

46. And theſe they ſet over the Bodies without *Burning* them (as they had formerly done in their *firſt Age*, which they called **Roiſold**, or **Brende tiid**, *Ætas ignea* [s]) the manner being as Mr. *Camden* informs us, for every *Soldier* remaining alive after a *Field* Fight, to carry his *Head-piece* full of *Earth*, towards making the *Tombs* of their *Fellows* that were ſlain [t], Χεύαντες δὲ τὸ σῆμα, *fundentes tumulum*, after the manner of the *Greeks*.

47. But the *Romans* here in *Britan*, having little reaſon to expect more favour than they found in *Germany*; whenever any *Conſul*, or eminent *Warrior* died in ſuch an *Expedition*, firſt *Burned* them on the level near the *via ſtrata*, or *militaris* [u], by which means having deprived their exaſperated *Enemies* of all hope of being able to abuſe the dead *Bodies*; they moreover endeavoured to prevent the very ſcattering their *Aſhes* in haſte, the whole *Army* caſting on them pure *graſſy Turfs*, cut from the ſurface of the Ground, which probably indeed may be the very reaſon (as the Learned and Ingenious Mr. *Dugdale* [u] gueſſes) why there appears not any hollowneſs whence the *Earth* was taken that raiſed theſe *Tumuli*.

48. Whereof here in *Oxford-ſhire* I have met with two kinds; one placed, as above, on the *Prætorian Ways*; and the other ſort not ſo, yet both commonly called *Burrows*, alias *Barrows*, from the *Saxon* Beorg, *collis*, *acervus*, whence our word to Bury [w]. Hence alſo the *raiſed Banks*, made

[p] *Ibidem.* [q] Olaii Wormii, *Monument. Danic. lib.* 1. *cap.* 7. [r] *Ibidem lib.* 1. *cap.* 6. [s] *Ibidem cap.* 7. [t] *Vid.* Camd. *Britan. in Com. Wilt.* [u] Mr. *Dugdale's* Antiquities of *Warwick-ſhire*, in *Knightlow* Hundred. [w] *Vid.* Guliel. Somneri, *Diction. Saxonico-Latino Angl. in verbo.*

for

for *Conies* to hide themſelves, ſays Sir *Henry Spelman*, were alſo called *Berries* [x]. Of the firſt ſort is the *Hillock* in the Pariſh of *Fritwell*, called *Plowly-hill*, ſtanding juſt within *Oxford-ſhire* on the *Portway*, and (which is ſomewhat more than ordinary) giving name to the *Hundred* wherein it ſtands.

49. And there is another on the Weſt ſide of that branch of *Akemanſtreet* that comes out of *Woodſtock* Park, cloſe by the *Rivulet* over which that way paſſes; but the moſt eminent on *Akemanſtreet*, is that they call *Aſtall Barrow*, ſtanding High and Lofty, which I conceive might be the *Sepulcher* of ſome conſiderable *Perſon*, at leaſt of great repute amongſt the *common People* that paſt that way; there being another, not far off upon the ſame way, on the edge of *Oxford-ſhire*, incomparably leſs.

50. Upon theſe *High-ways* it was alſo uſual amongſt them to place *Pillars* of *Stone*, whereon they inſcribed the diſtances from the *Regal Cities*, *Stations*, and *Mutations*, whence the Phraſe, *ad tertium, quartum, vel quintum, ab Urbe lapidem, i. e.* ſo many *Miles* from the *City*. And of theſe I think the *Stone*, that yet lies on a Bank cloſe by *Akemanſtreet* way, not far from *Aſtall Barrow*, to have been a Remnant, and moſt likely of any the *Pedeſtal* of ſuch a *Pillar*: unleſs we ſhall rather think it to have been a *Pedeſtal* to a *Statue* of *Mercury*, made with *four Sides* and without *Arms*, from thence called τετράγωνος, κυλλὸς, or *Cyllenius* [y], and in old times *Hermæ*, which were alſo uſed every where to be ſet up near *High-ways*; and if in *croſs Roads*, with as many *Heads* as there were *Ways*, *ut interdum etiam quatriceps conſpiceretur* [z].

51. Whatever it were, no doubt this and the fore-mention'd *Barrows*, were of *Roman* Erection; but as for *Kenner*'s *Barrow* near *Shipton* under *Which-wood*, the large *Barrow* at *Stanton-Harcourt*, and that other (if it be one) called *Adwel Cop*; I think rather Erected by the *Britans* or *Danes*, for that near no *High-ways*, but in the open Fields, as *Saxo-Grammaticus* [a], and *Wormius* ſay they made them: *Non ſolum in campis & pratis occurrunt Tumuli, ſed & in Silvis*, &c [b]. *i. e.* that they have them not only in the *Fields* and *Meddows*, but in the *Woods* and *Groves* too.

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[x] *Vid.* Spelmanni *Gloſſarium in verbo Bergium*. [y] Lævini Torrentii *Comment. in* Horat Flac. *lib.* 1. *Ode* 10. [z] *Ibidem*. [a] *Saxonis Grammatici Hiſt. Danica, lib.* 8. [b] Olaii Wormii *Monument. Danic. lib.* 1. *cap.* 6.

52. More

52. More particularly, as for *Kenner's-barrow* and *Adwel-cop*, I think them erected but for inferior *Captains*, though perhaps eminent *Soldiers*, becauſe they are of the *Rudiores, ex ſola terra*: But for that at *Stanton Harcourt*, if a *Daniſh* Monument, it was certainly a Memorial of ſome greater *Perſon*, becauſe of the *Stones* ſet near it, of which more hereafter in another place: though it be poſſible too that theſe may be *Roman*, it being cuſtomary for them to ſet up ſuch *Trophies*, at the utmoſt Bounds of their *Victories*, or where they could not conveniently advance them further, as *Dion* teſtifies, the *Roman* General *Druſus* did at the River *Albis*, τροπαια ϛησας απεχωρησε [c], *i. e.* that he ſet *Trophies* and returned: which *Trophies* of his, *Florus* ſays expreſly, were only a *Tumulus*: *Nam Marcomannorum ſpoliis inſignibus quendam editum tumulum in Trophæi modum excoluit*, are his very Words [d] concerning the ſame *Expedition* of *Druſus*.

53. However it were, 'tis certain the *two* former of *theſe* are much different from thoſe erected on the *viæ militares*, for I found them *trenched* round, and particularly that of *Adwelcop*, with two or three *Circumvallations*, part whereof are ſtill viſible on the South-eaſt ſide of it, inſomuch that I queſtion whether there were not ſome *Camp*, with this *Trophy* perhaps of *Victory* erected within it, of which more hereafter, when I come to ſpeak profeſſedly of the ancient *Fortifications* yet remaining in this County.

54. Of other *Roman Antiquities* that I can certainly call ſuch, the moſt Eminent I met with is a part of their *Pavement* made of ſmall *Bricks* or *Tiles*, not much bigger than *Dice*; whereof the *Roman* Generals, amongſt their other *Baggage*, were uſed to carry a Quantity ſufficient to pave the Place, where they ſet the *Prætorium* or *Generals* Tent, or at leaſt ſome part of it, which is particularly witneſſed of *Julius Cæſar*, *In expeditionibus teſſella, & ſectilia pavimenta, circumtuliſſe* [e].

55. Theſe if made of ſmall ſquare *Marbles*, of divers *natural* Colours, were called *Lithoſtrota*; but if of ſmall *Bricks* or *Tiles*, *artificially* tinged with Colours, *annealed* and *poliſh'd*, *Pavimenta teſſellata*, or *opus Muſivum* [f]; and both *Aſarota* [g], for their not being to be ſwept, but wiped with a *Spunge*. As for ours plowed up ſomewhere about

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[a] Dionis Caſſii *Rom. Hiſt. lib. 55. ſub initium.* [d] L. An. Flori *Rer. Rom. lib. 4. c. 12.*
[b] Suetonius *in vita* Julii Cæſaris. [f] Salmaſii *Annot. in* Sueton. *in vita* Julii Cæſaris.
[c] Plin. Sec. *Hiſt. Nat. lib. 36. cap. 25.*

Great

Great-Tew, and engraven *Tab.* 15. *Fig.* 22. I take it for certain to be of the ſecond ſort, it conſiſting of a Matter much ſofter than *Marble*, cut into *Squares* ſomewhat bigger than *Dice*, of four different Colours, *viz. Blue*, *White*, *Yellow*, and *Red*, all *Poliſhed*, and orderly diſpoſed into *Works*; the Colours of the *Squares* being repreſented in the *Cut*, as thoſe of the *Arms* in the *Map*.

56. There was much ſuch another *Pavement* Plowed up at *Steeple-Aſton*, conſiſting likewiſe of *Squares* of divers Colours, and ſet in curious *Figures*, but as deſcribed to me by the Reverend Mr. *Greenwood*, Rector of the place, not *cubick* like the former, but *oblong Squares* ſet perpendicular to the *Horizon*. That theſe *Pavements* were *Roman*, I think there's no doubt, notwithſtanding found near no *Roman Station*, and fat enough removed from any *Roman High-way*; (except the Branches of *Akeman-ſtreet* from *Ramſden* and *Woodſtock*, might happily paſs theſe places:) But I gueſs not ſet here 'till they wholly poſſeſt themſelves of this *Southern* part of *Britan*, and might ſecurely enough paſs their *Armies* any where; and therefore cannot afford them any higher *Antiquity* than the time of *Agricola* the Lieutenant of *Veſpaſian*, who compleated the *Roman* Conqueſts; or at moſt of *Paulinus*, that defeated *Boadicea*.

57. Under the *Sepulchral Monuments*, or *Tumuli* aforementioned, raiſed by the *Romans* over their *Dead* in Memory of them, they placed the more immediate Receptacles of the *Aſhes*, or at leaſt ſome part of them, as much as could be ſaved in the *Vas uſtrinum*; for they were not ſo curious as ſome have imagined, to ſcrape together all the *Bones* and *Aſhes* of the *Corps*, as may be eaſily collected from the Smalleſt of all *Urns*, but *Family ones*. Yet over all their *Urns* they raiſed not ſuch a *Tumulus*; for we find them many times in *level* Ground, though containing the Remains of noble *Perſons*, as may be gueſſed by the *Lamps*, *Lachrymatories*, and *Veſſels* of *Oyls*, or *Aromatical Liquors* ſometimes found with them.

58. Of which ſort of *Veſſels*, I preſume that odd faſhion'd *Glaſs*, depicted *Tab.* 15. *Fig.* 23. muſt needs be one, found in a place called *Buſhy-Leas*, betwixt *Brightwell* and *Chal-grave*, being part of the Poſſeſſions of that Right worthy Gentleman, *John Stone* of *Brightwel* Eſq; ſurrounded with no leſs than twelve of thoſe *Urns*, *Tab.* 15. *Fig.* 24. both which, amongſt many other ſignal Favours, were kindly beſtowed

on

on me by the ſame worthy *Perſon*. That the *Earthen-pot*, *Fig.* 24. is a *Roman* Urn, I take to be ſo plain, that it would not need Proof, though one of the four *Regal High-ways* were much farther removed than *Ikenild-way* is, which comes up almoſt to *Ewelm*, not far from this place: But whether this *Glaſs* contain'd a *Lamp*, were a *Lachrymatorie*, or a *Veſſel* containing *Water*, or ſome *Aromatical Liquor*, is the great Queſtion next to be determined.

59. That the Bodies of great Perſons were uſually accompanied with *Lamps* after Death, is plain from the *Civil Law* [h], and to interr *Lamps* with them, was heretofore ſo frequent, that *Forturius Liceti* has written a whole Book, *De reconditis Antiquorum Lucernis*, amongſt which he mentions one out of *Baptiſta Porta*, called *Lucerna Neſidea* (from the Iſland where found *in Cratere Neapolitano ſita*) which was included within a *Glaſs*, and placed in a Marble *Tomb* [i], upon the ſame account (I ſuppoſe) that indeed all others were; both as a Symbol of the Quality of the *Perſon* there interr'd, and for the ſake of the *Soul*, which they thought did not ſo quite deſert the *Body*, but that it reſted with it in the Grave [k].

60. But that ours was ſuch a *Glaſs* including a *Lamp*, I dare not conclude, more than that it is barely poſſible it might be ſo, it ſeeming much rather likely to have been a *Phiala Lacrymatoria*, or *Tear-bottle*, wherein the ſurviving Friends of the deceaſed, collected thoſe paſſionate Expreſſions of their Grief, and uſually buried with them, as is ſometimes ſignified in old *Inſcriptions*, by ſome ſuch Expreſſion as, *Cum lacrymis poſuere* [l]; only it is of a much different Figure from any of thoſe deſcribed in *Joh. Bapt. Caſalius* [m], and *Paulus Aringhus* [n].

61. And therefore I rather believe it to have been one of thoſe *Veſſels* containing ſome *Aromatical Liquor*, ſuch as they uſually *interred* with the *Urns* of *Noble Families* [o], and perhaps a *Glaſs* of the ſame kind with thoſe three found in a *Roman Urn*, preſerved by Cardinal *Farneſe*, and mentioned by *Vigeneri* [p]: Except we ſhall rather think it the *Veſſel* for the *Aqua luſtralis* ſprinkled by the *Prieſts* on the *Urns*, to expiate for the ſmaller Faults of the deceaſed [q], which poſſibly they might after *bury* with them, which *Waters*

[h] ff. *De Manumiſſis Teſtamento*, L. Mævia. [i] Bapt. Portæ *Magiæ Nat. lib.* 12. *cap. ult.* [k] Fortunii Liceti *de reconditis Antiquorum Lucernis*, *lib.* 3. *cap.* 6, & 7. [l] *Vid.* Johan. Bapt. Caſſalium *de Urbe & Ritibus* Romanorum, *cap.* 21. [m] *Ibidem.* [n] Pauli Aringhi Româ *ſubterranea*, *lib.* 3. *cap.* 22. [o] *Sir* Thomas Brown's *Hydriotaphia*, *cap.* 3. [p] *Ibidem*, *cap.* 2. [q] Joh. Bapt. Caſſalius *de Urbe & Ritibus* Romanorum, *cap.* 22.

were

were otherwiſe called *arferiæ aquæ*, and by the *Greeks*, χθόνια λυτρὰ, or ὕδωρ ὅτι τοῖς νεκροῖς ἀποδόμενον[r]: But I rather incline to the former of the *two*, becauſe there ſeems a kind of *white Subſtance* yet remaining between the two *Coats* of the *Glaſs* (it being a *Veſſel* of a peculiar make, one *Glaſs* as it were including *another*) which poſſibly might be the *Sediment* of ſome ſuch *Aromatical Liquor* when dryed away.

62. Alſo in the Pariſh of *Wendlebury* I ſaw a great *ſquare Stone*, hollowed round in the Middle, dug up in or near the old *City* of *Aldceſter*, in which there was ſet a *Glaſs Bottle* fitted to it, containing nothing but ſomewhat like *Aſhes*, and cover'd over above with another broad flat *Stone*: This *Urn* I ſaw at a Houſe in the *Town*, where 'tis uſed for a *Hog-trough*, but the *Glaſs* had been broken long before, nor could I get any certain Deſcription of it; however, I gueſs it ſome ſuch like *Veſſel* with that deſcribed above, and placed there upon the ſame or like accounts. There have been ſeveral other *Urns* alſo taken up at divers other places, particularly in the old *Mine* at *Bland's Court* above-mention'd, *Chap.* 6. §. 63. at a place called *Drunſhil*, not far from *Wood-Eaton*, but belonging, as I was told, to the Pariſh of *Marſton*, near the ridged Way that comes from *Noke*; and three in one Mr. *Finche*'s Houſe at the *Market-place* in *Henley*, and one in the High-way that leads towards the *North* at the *Town's-end*, not far from *Ancaſtle*, which argues thoſe places ſome of the firſt *Roman Habitations*, though no *recorded Gariſons*.

63. Nor indeed is there any ſuch to be found in this County, though it cannot but be acknowledged that *Oxford* it ſelf muſt be a noted place, before the Departure of the *Romans* at leaſt, if the *Roman* Way thither, deſcribed in the *Map*, prove ſo good an Argument to the *Reader* as my ſelf. Where by the way perhaps it may not be unworthy notice, that *Oxford* is mention'd by the *Arabian* Geographer, *Sharif ol' Edriſi*, or *Adriſi* (of whoſe *Works* the *Geographia Nubienſis* tranſlated by *Gab. Sionita*, and *Johan. Hezronita*, is too ſhort an *Epitome*) by the Name of عزكفرت *Ozcfort* *, withal adding, that it ſtands on the ſame *River* with *London* (which *River* he calls رطاندة *Retandah* †)

[r] *Vid.* John Meurſius *de Funere, cap.* 14. * Perhaps written عزكفرت *Ozcfort*, (by a Tranſpoſition of the Letters, which many times occurs in Words of difficult Sound) inſtead of عكزفرت *Oczfort*. † رطاندة *Retânde* ſeems to be a Fault of the Scribe: whereas the Author probably intended to have it read طامزة *Tâmize*, or *Tâmiſe*.

40 Miles above it[r], which ſhews that *Oxford* was always a *Town* of good Repute, in the remoteſt *places*, as well as *times*.

64. As for the *Antiquity* of the *Univerſity*, beſide what was alledged §. 30 of this *Chapter*, I think it very conſiderable what remains upon *Record* in *Magdalen College Library*, in an ancient MS. of *Walter Burley*'s Fellow of *Merton College*, (*Tutor* to the Famous King *Edward* III. and commonly ſtiled Dr. *Planus*) upon the *Problem* [*Complexio rara quare ſanior*] he has theſe Words (which ſhould indeed have been mentioned before, *Chap.* 2. §. 3. of this *Eſſay*) concerning the *healthy Situation* of *Oxford*, and its Selection by *Students*, for the Seat of the *Muſes*: *Notanda*, inquit, *ſunt tria, quod* Civitas *ſana eſt in* Borea *& in* Oriente *ſi plantata eſt aperta, & in* Auſtro *&* Occidente *ſi montoſa; propter puritatem* Boreæ, *&* Orientis, *& putrefactionem* Auſtri *&* Occidentis: *ſicut* Oxonia, *quæ per induſtriam Philoſophorum de* Græcia *fuerat ordinata*[t], *i. e.* that a healthy *City* muſt be open to the *North* and *Eaſt*, and Mountanous to the *South* and *Weſt*; by reaſon of the Purity of the former *Quarters*, in reſpect of the latter: juſt as *Oxford* is ſeated, which was ſelected by the *Philoſophers* that came from *Greece*.

65. According to the Rules of their great Maſter *Hippocrates*, who requires no other, but the very ſame Situation for a healthy *City*[u]. But about what time it was theſe *Philoſophers* arrived, though I dare not be too confident, yet in all probability they might be ſome of thoſe *Grecians* brought over by *Theodorus* the *Greek* Arch-Biſhop of *Canterbury*, about the Year 668[w], whom 'tis like he placed here to inſtruct the *Saxon* Youth; for we find Venerable *Bede*, and St. *John de Beverlaco* (always reputed of this *Univerſity*) to have been his *Scholars*; and ſo *Tobias* Biſhop of *Rocheſter*, and *Albinus* Abbot of St. *Auguſtin's Cant.* who are ſaid to have underſtood the *Greek* Tongue as well as their native one[x].

66. Not to mention that *Britan* was known to the *Greeks* before the Arrival of the *Romans*; for otherwiſe *Polybius* could never have hoped to have deſcribed *Britan*, or the

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[r] *Sharif Ol' Edriſi Geograph. MS. Arab. penes Reverend.* Edv. Pocock *S. T. P. & olim Eccleſ. Cath. Chriſt.* Oxon. *Canonicum.* [t] *In Problematibus* Ariſtot. *ſecundum laborem Magiſtri* Walter Burley, *ad ordinem Alphabeti. MS. 65. in Bib. Coll. B. M. Magdalen.* Oxon. *fol.* 12 *b.* [u] Μεταξὺ τῶν Ἑλλήνων τῶν δεινῶν τῆς πόλιος, καὶ τῶν ἀνατολέων, τῶν δεινῶν. Hippocrat. *Oper. ſect* 3. *cap.* περὶ ἀέρων ὑδάτων, τόπων. [w] Godwinus *de Præſulib. Ang. in vita* Theodori. [x] Matth. Parker *de Antiquitate Eccleſ.* Britan. *in vita* Theod.

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Method there uſed in ordering *Tin*, as we find he deſigned, having promiſed to write, περὶ τῶν Βρεττανικῶν νήσων, ἐν τῇ τῶν κατὰ μέρος κατασκευῶν [y]. Which Book though loſt, yet *Strabo* * bears us witneſs, that therein he refuted the Errors of *Dicæarchus*, *Pythias* and *Eratoſthenes*, concerning the Magnitude of *Britan*, who were alſo *Greek* Authors (that it ſeems had written ſomething concerning this *Iſland*) and much ancienter than himſelf. Nor to note ſecondly, that the *French Druids* (who had their Learning out of *Britan*) in things of common concern, uſed the *Greek Character* [z]; which how they ſhould come by without the learning of the *Greeks* (which poſſibly might be brought over by ſome of their *Philoſophers*, who accompanied the *Merchants* trading for *Tin*, and ſeated themſelves here) let the *Reader* judge.

67. But for the *Biſhoprick* of *Oxon*, it is but of late Erection, taken out of that of *Lincoln* by King *Hen.* VIII. and of no longer ſtanding than his Days, notwithſtanding what we meet with in the *Decretals* of Pope *Gregory*; where we find two *Reſcripts* of Pope *Alexander* the Third, about the Year 1158. directed to the Biſhop of *Oxon.* and *others* [a], it being but a Miſtake (though to be found in all the *Copies*, I could meet with) of *Oxonienſi*, for *Exonienſi*, as plainly appears in the fourth *Book* of the ſame *Decretals* [b], compared with the places afore-cited.

68. Yet the ancienteſt *Town* of the whole *County* I take to be *Henley*, ſo called from the *Britiſh Hen*, which ſignifies *old*, and *Lley* a *place*, and perhaps might be the head *Town* of the People called *Ancalites*, that revolted to *Cæſar* [c]: it was alſo called *Hanleganz* and *Hanneburg*, as appears by an *Inſpeximus* of Q. *Elizabeth*, granted this *Corporation*. And there is a place near it, ſtill called *Ancaſtle* (Weſt of the Town where the *Wind-mill* now ſtands) which is but the *Norman* Name, importing the ſame with the *Saxon Hanneburg*. If it be objected, that *Aldbury*, near *Ricot* in this *County* (according to vulgar Tradition) is the *Mother* of *Henley*, and conſequently *older*; it may be anſwer'd, that its probable indeed that *Chriſtian Henley* may be younger than *Aldbury*, in reſpect of a *Church* firſt built there, but upon no other account.

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[y] Polybii Megal. *Hiſtoriar. lib.* 3. *p.* 209. *Edit.* Iſ. Caſaub. *An.* 1619. * Strabon. *Geograph. lib.* 2. *p.* 104. *Edit.* Caſaub. Paris. *An.* 1620. [z] Jul. Cæſaris *Comment. de Bello* Gallic. *lib.* 6. [a] *Decret. de filiis Presbyteror. ordin. & non. c. Propoſuit. & de officio, & poteſt. juſt. deleg. c. Cauſam.* [b] *Decret. qui filii ſint legitimi, c. Cauſam.* [c] Julii Cæſaris *Commentar. de Bello* Gallico, *lib.* 5.

69. And the Town of *Watlington* ſeems of no ſmall *Antiquity*, provided its *Age* do but anſwer its *Etymology*; for by its Name it ſeems alſo to have been an old *Britiſh City*, which according to *Strabo*, were nothing elſe but *Groves*, fenced about with *Trees* cut down, and laid croſs one another, within which they built them *Sheds* both for themſelves and Cattle. Πόλεις δὲ αὐτῶν εἰσὶ δι δρυμοὶ, ἐκφράξαντες γὰρ δένδρεσι καταβεβλημένοις εὐρυχωρῆ κύκλον, καὶ αὐτοὶ ἐνταῦθα καλυβοποιοῦνται, καὶ τὰ ἑρπετὰ κατασταθμεύουσι[d], are his very Words: which manner of *Fence* the *Saxons* after called partly *Crates*, Hurdles or Wattles, within which Mound building them *Tents* or *Coverings*, by the *Saxons* alſo called pæcel[e]; from one of theſe, or both, I gueſs this Town took its Name.

70. As alſo the *Prætorian* or *Conſular Way*, called *Watlingſtreet*, and *Wattle-bank* here in *Oxford-ſhire*, theſe in all Probability being made the ſame way that *Hadrian* is ſaid to have made *Boundaries* (where *Rivers* were wanting) between *barbarous* People, *Stipitibus magnis in modum muralis ſepis funditus jactis atque connexis*[f], *i. e.* with great *Stakes* ſet faſt in the Ground, and knit together 'tis like with ſmaller Wood *woven* between; which if happily made uſe of in theſe *Ways* to keep up the *Earth* at firſt, might well invite the *Saxons* to name them *Wattleng-ſtreet*, *Wattle-Bank*, &c.

71. Juſt upon the meeting of *Akemanſtreet-way*, and the *Port-way* from *Walleng ford*, there are alſo ſome Foot-ſteps of that decayed ancient *Station*, by *Camden* called *Alcheſter*, ſtill remaining, which he gueſſes ſo called, as one would ſay an *old Town*[g]. But I met with ſome *Notes* in a MS. that ſay it was the Seat of *Alectus* the Emperor, who having treacherouſly ſlain his Friend and Maſter, the Emperor *Carauſius*, baſely uſurped *Britain* for himſelf, calling this his new Seat after his own Name, *Alecti Caſtrum*, ſince *Alcheſter* or *Aldceſter*: but it ſeems by the Story that it flouriſh'd not long, for *Conſtantius Chlorus* being ſent againſt him by the Emperors *Diocleſian* and *Maximian*, and by the Benefit of a Miſt, landing privately ſomewhere on the South-ſhore, near the *Iſle of Wight* (whether *Alectus* came to prevent it) gave him Battle, defeated, and put him to Flight towards this his chief *Fortreſs*, but was overtaken and ſlain by *Aſclepiodotus*, one of *Conſtantius*'s Captains

[d] Strabonis *Geographiæ*, *lib.* 4. [e] Gul. Somneri *Dictionarium* Saxonico-Lat-Angl. *in verbis.* [f] Ælius Spartianus *in* Hadriano. [g] Camd. Britan. *in* Oxon.

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(as this Author will have it) here at *Elsfield*[h] near *Oxford*, (which he alſo would have a Corruption of *Alectus-field*) before he could reach it.

72. For the Credit of this *Relation*, it having no Foundation in the *Roman* Story, I ſhall wholly leave it to the *Reader*'s Judgment; yet ſhall add thus much for its Reputation, that the *Roman military Ways* lie very agreeable to it; for on Suppoſition, this *Conflict* happened about *Regnum*, now *Ring-wood*; or *Clauſentum*, now *Southampton*, the *Roman Ways* lie directly thence to *Venta Belgarum*, now *Winchester*; and ſo to *Callena*, now *Wallengford*, according to the *Itinerary* of *Antoninus*[i]; and thence cloſe by *Elsfield* to *Alcheſter*, as deſcribed in the *Map*, and in §. 27. and 28. of this Chapter.

73. Which is all I find remaining of the *Romans* here, but ſome Parcels of their *Money* found at many other *places*, particularly near *Dorcheſter*, not far from *Dike-hills*, near the Fortification at *Idbury*, and *Madmarſton-hill* in the Pariſh of *Swalcliff*, incloſed with a double *Vallum*; which I there judge to have been *Roman Works*. There is alſo a ſmall *Circumvallation* in a Wood South and by Weſt of *Harpſden* Church, near which place there has alſo been *Roman* Money dug up (whereof there was ſome in the Poſſeſſion of the Worſhipful . . . . . *Hall* Eſq;) and ſo likewiſe about *Horley*, *Swerford*, *Chippingnorton*, *Teynton*, and a Village called *Sinet* near *Burford*, *Stratton-Audley*, *Fringford*, and *Tuſmore*, and moſt of them of the *Emperors* between *Cocceius Nerva*, and *Theodoſius* the ſecond, excluſively.

74. After the Departure of the *Romans* came the *Saxons* into *Britan*, and after them the *Danes*, who alſo made them *Works* ſo indiſtinguiſhable from the *Romans* (otherwiſe than by the *Roman Money* found near them, as in the former *Paragraph*) that they can ſcarce be known aſunder: So that whatever of theſe *Fortifications* (at moſt Places in this *County* abuſively called *Barrows*) have no *Roman Money* found at or near them, I think we muſt conclude either *Saxon* or *Daniſh*; *Saxon* if ſquare, and if round *Daniſh*; for ſo I find them diſtinguiſh'd in a MS. Hiſtory of *Ireland* by *E. S.* whereof the firſt ſort he calls *Falkmotes*, *i.e.* Places for the meeting of the Folk or People, upon the Approach of the *Enemy*; and the latter *Danerathes*, *i.e.* Hills of the *Danes* made

[h] *MS penes Autorem.* [i] *See* Burton's *Map of* Antoninus *his* Itinerary.

for

for the ſame Purpoſe [k], though I very much queſtion whether I ſhall find all theſe Forms ſtrictly obſerved in all Places hereafter.

75. Yet I find *Tadmerton Caſtle*, and *Hooknorton Barrow* not far from it, agreeable to this *Rule*; the former being *large* and *round*, and the other ſmaller and rather a *quinquangle* than a *ſquare*; both of them caſt up (the great round one by the *Danes*, and the leſs ſquare one by the *Saxons*) about the Year 914, when the *Danes* in the time of *Edward Senior* being grown ſtrong and numerous, came forth of *Northampton* and *Leiceſter*, and made great Slaughter of the *Engliſh-Saxons* at **Hochmeretune**, ſays *Joh. Bromton*, *An.* 10. of *Edward Sen.* [l] at **Hokenertune**, ſays *Florentius Wigornienſis*, which he calls *Villam Regiam* [m], now *Hoke-norton*.

76. As for *Chaſtleton Barrow*, by the above-mention'd *Rule*, it ſhould be a Fortification of the *Danes* perhaps caſt up about the Year 1016. at what time *Edmund Ironſide* met *Canutus* the *Daniſh* King hereabout, and defeated him after a long and bloody Battle, fought at a Place called *Seorſtan* by *John Bromton* [n], *Sterneſton* and *Sceruſdan* by *Matth. Weſtminſter* [o], *Scearſtan* by *Florentius Wigornienſis* [p] and *Simon* of *Durham* [q], and *Sejerſtan* by *Wormius*, from *ſejer victoria*, and *ſtan lapis*; whereof all the reſt ſeem but Corruptions, there being ſeveral ſuch in *Denmark* and *Norway* called by that name to this Day*: which though they all ſay expreſly was in *Huinctia* or *Huiccia*, i. e. *Worceſter-ſhire*, yet I verily believe it with *Camden*, to be that *Stone* not far off, called *Four-ſhire-ſtone* (or elſe that other near it) parting four Counties, whereof *Worceſter-ſhire* is one.

77. And as for the *Entrenchments* in *Merton* Woods, I gueſs them caſt up by King *Æthelred*, or the *Danes* in the Year 871. at what time ſays *Floren. Wigornienſis*, King *Æthelred* and his Brother *Ælfred*, *cum paganis pugnantes apud* **Meretune** [r], fighting with the *Danes* at *Mereton* (as I find this *Town* was anciently written in the *Leigier* Book of *Enſham* [s]) overcame them, and put their whole *Army*

[k] *Hiſtory of* Ireland, *MS. penes Authorem.* [l] *In Chronico* Johan. Bromton. *Abbot. Jornalens in An.* 10. Edv. *Sen.* [m] Florentius Wigornienſis *in Anno* 914. [n] *Chronicon* Johan. Bromton. *Abbot. Jorn. in vita* Edmundi Fer. *lat.* [o] Matth. Weſtmon. *Flores Hiſtor. in An.* 1016. [p] Flor. Wigor. *in Anno citato.* [q] Simeon Dunelmenſis *Hiſt. de geſtis Reg. Ang. in eodem.* * Ol. Worm. *Mon. Dan. lib.* 3. *Monument. inter Ripenſia* 5. *p.* 343. [r] Floren. Wigornienſis *in anno citato.* [s] *E Regiſtro de* Enſham, *MS. penes Reverendiſſimum Decanum & Capitulum Eccleſiæ Cathedral. Chriſt.* Oxoniæ.

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to Flight. That the *Danes* had ſomewhat to do hereabout, is further evinced, from one of their *Spurs* in the Hands (if I miſ-remember not) of *George Sherman* of the Town of *Biſſeter* not far from this Place, which I took no care to get *engraven*, becauſe already done by *Olaus Wormius* [t], where the *Reader* may ſee the exact *Figure* of it: All which put together, and that this place is near the meeting of two *military Ways*, I am pretty well ſatisfied that this Battle between *Æthelred*, his Brother *Ælfred*, and the *Danes*, was much rather here, than at *Merdon* in *Wilt-ſhire*, as ſome have thought it.

78. And if *Adwell-Cop* may paſs for a *Fortification*, as the *Entrenchments* about it on the South-eaſt-ſide ſeem to promiſe, I gueſs it made about the Year 1010, when the *Danes*, as *Simeon* of *Durham* teſtifies, came forth of their Ships in the Month of *January*, and paſſing through the *Chiltern* Woods, came to *Oxford* and burnt it [u], erecting perhaps this *fortified Barrow* in the way, where 'tis like they might meet with ſome Oppoſition, and looſe ſome principal *Captain*. As alſo upon *Shotover-hill*, where there ſeems to have been two other little *Barrows*, on the left Hand of the Road from *Oxford* to *London*, that ſhould I confeſs have been mentioned before in §. 51. of this Chapter.

79. But as for the large ſquare *Entrenchments* on *Callow-hills*, in the Pariſh of *Stunsfield* (which yet 'tis poſſible too may have been an old *Britiſh Town*, ſuch as deſcribed by *Cæſar*, *Oppidum vocant cum Sylvas impeditas vallo atque foſſa munierunt* [w], it being much larger than any of the reſt, and having deep *Holes* within, I ſuppoſe to preſerve *Water*) the ſmall *Fortification* under *Cornbury* Park-wall, and the large one called *Beaumont*, near *Mixbury* Church, encompaſſed with a Ditch 170 Paces one way, and 128 the other; I can give no account of them, but that in general 'tis like they were *Works* of the *Saxons*, theſe being all *ſquare*, though the laſt by its Name ſhould indeed be *Norman*.

80. And ſo again for the *Fortification* commonly called *Round-caſtle*, Weſt of *Begbrook* Church, but in the Pariſh of *Bladen*, and *Lineham Barrow*, (between which and *Pudlicot*, a Seat of the ancient Family of the *Lacy*'s, there

[t] Olai Wormii *Monument. Danicor. lib.* 1. *cap.* 7. *p.* 50. *Fig. E.* [u] Simeon Dunelmenſis, *de geſtis Reg. Ang. in anno* 1010. [w] Julii Cæſaris *Commentarior. de bello* Gallico, *lib.* 5.

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is Paſſage under Ground down to the *River*) I can ſay little of them, but in general 'tis moſt probable they were made by the *Danes* (they being both *round*) but upon what particular Occaſion, I could no where find.

81. Beſide the *Circles* of *Earth* caſt up by the *Danes*, there are others of *Stone* in many places of this *Nation*, and particularly *one* here in the very Bounds of *Oxfordſhire*, near *Chipping-norton*, in the Pariſh of *Little-Rollwright*, the *Stones* being placed in Manner and Form, and now remain as exactly engraven *Tab.* 15. *Fig.* 2222, in a *Round* of 'twixt 30 and 40 Paces over; the talleſt of them all (which may be a *Scale* for the reſt) being about ſeven Foot high. North of theſe, about a Bolts-ſhoot off, on the other ſide the Hedge, in the County of *Warwick*, ſtands one ſingly alone, upwards of nine Foot high, in Form as deſcribed *Fig.* 1. and Eaſtward five others, as in *Fig.* 3. about two Furlongs off, the higheſt of *them* all about nine Foot alſo; meeting formerly at the Top (as drawn by Mr. *Camden*) with their tapering Ends, almoſt in Shape of a *Wedge*, ſince whoſe time there are two of them fallen down from the reſt. Of which ancient *Monument* (or what ever elſe it be) he gives us in brief this following account [x].

82. Not far from *Burford* (he ſhould have ſaid *Chipping-norton*, for *Burford* cannot be leſs than 7 or 8 Miles from it) upon the very Border of *Oxfordſhire*, is an ancient *Monument*, to wit, certain huge Stones placed in a *Circle*: the common People call them *Rollrich-ſtones*, and dream they were ſometimes *Men*, by a miraculous *Metamorphoſis* turned into hard Stones. The higheſt of them all, which without the *Circle* looketh into the *Earth*, they call the *King*, becauſe he ſhould have been *King* of *England* (forſooth) if he had once ſeen *Long-Compton*, a little Town lying beneath, and which one may ſee if he go ſome few Paces forward.

83. Other *five* ſtanding on the other ſide, touching as it were one another, they imagin to have been *Knights* mounted on *Horſeback*, and the reſt of the *Army*. Theſe would I verily think, ſays he, to have been the *Monument* of ſome *Victory*, and happily erected by *Rollo* the *Dane*, who afterwards conquer'd *Normandy*; for what time he with his *Danes* troubled *England* with *Depredations*, we read that the *Danes* joined Battle with the *Engliſh* at *Hoch-*

[x] *Britannia* in *Oxfordſh.*

norton,

norton, a place for no one thing more famous in old time, than for the woful Slaughter of the *Engliſh* in that foughten Field, under the Reign of King *Edward* the *elder*.

84. That this *Monument* might be erected by *Rollo* the *Dane*, or rather *Norwegian*, perhaps may be true, but by no means about the time of *Edward* the *elder*; for though it be true enough that he troubled *England* with *Depredations*, yet that he made them in the Days of King *Alfred*, I think all the ancient *Hiſtorians* agree, *An.* 897. according to *Florilegus*[y], but according to Abbot *Bromton*[z] a much better *Author*, in the Year 875, near 40 Years before that Slaughter of the *Engliſh* in King *Edward*'s Days, as will plainly appear, upon Compariſon of *this* with the 75 §. of the ſame *Chapter*.

85. Therefore much rather than ſo, ſhould I think he erected *them*, upon a ſecond Expedition he made into *England*, when he was called in by King *Æthelſtan* to aſſiſt him (as *Thomas* of *Walſingham* witneſſes) againſt ſome potent *Rebels* that had taken *Arms* againſt him[a]; whom having vanquiſhed, and reduced into Obedience to their *Prince*, and perhaps too ſlain the deſigned *King* of them (who poſſibly might be perſwaded to this *Rebellion*, upon a *conditional Propheſy* of coming to that *Honour* when he ſhould ſee *Long-Compton*) might erect this *Monument* in Memory of the *Fact*; the great *ſingle Stone* for the intended *King*, the *five Stones* by themſelves for his *principal Captains*, and the *round* for the *mixt Multitude* ſlain in the Battle, which is ſomewhat agreeable to the *Tradition* concerning them.

86. But if I may give my Opinion what I really think of them, (though I do not doubt much but they muſt be a *Daniſh* or *Norwegian Monument*) I can by no means allow the *round* or *other Stones* to be *Sepulchral Monuments*: For had the *Cirque* of *Stones* been any ſuch *Memorial*, it would certainly have had either a *tumulus* in the Middle, like the *Monument* near the way to **Birch**, in *Seland*, and of **Langbeen Kiſer** not far from it[b], and another near **Roeſchild** *; or a *ſtone Altar*, as in the notable *Monument* of *Harald Hyldetand* near **Leire** in *Seland*[c], placed there, ſays *Wormius* (in another part of his Book) *eo fine ut ibidem in memoriam defuncti quotannis ſacra peragantur*,

[y] Matth. Weſtmonaſt. *in An. citato.* [z] Johan Bromton *Abb. Jorn in vita* Aluredi. [a] Tho. *de* Walſingham *Ypodigma Neuſtriæ, ſub initium.* [b] Olai Wormii *Mon. Danic. lib.* 1. *cap.* 3. * *Idem, lib.* 1. *cap.* 6. [c] *Idem, lib.* 1. *cap.* 5.

that they might yearly offer Sacrifices in Memory of the defunct, at the place of his Inhumation. But neither of theſe are within *Rollright Cirque*, nor could that curious and learned *Antiquary*, the Worſhipful *Ralph Sheldon* of *Beoly* Eſq; (one of the nobleſt Promoters of this *Deſign*) who induſtriouſly dug in the Middle of it (to ſee whether he could meet any *Symbols* or *Marks*, either who might erect it, or for what End or Purpoſe) find any ſuch matter.

87. For the very ſame reaſon, it is alſo as certain that it cannot have been any place of *Judicature*, ſuch as was uſed in old time in the *Northern Nations*, whereof there is one ſo great in *Seland*, as deſcribed by *Wormius*, that it takes up no leſs than ſix and forty great *Stones* of ſtupendious Magnitude within its Circumference [d], and ſo does *Rollright* and more too; but then it has no *Stone* (nor I ſuppoſe ever had) erected in the *Middle* for the *Judge* to ſit on; as thoſe always had. Beſide theſe *Fora*, or Places of *Judicature*, (by the *Danes* called **Tings**) ſeem always to have had their *Muniments* of *Stone*, either of a *Quadrangular* or *Oval* Figure, and not to be entred but at two ſides, as that at **Dreething** mention'd by *Wormius* [e], whereas ours is *circular*, and ſhews no Signs of ſuch *Gates*.

88. Which perhaps might occaſion the Learned *Dr. Charleton*, to judge it rather a *Trophy*, or *Triumphal Pile*, ſet up as a *Monument* of ſome great *Victory* [f], to whom though I cannot but ſomewhat incline, yet am verily perſwaded, that at the ſame time it might ſerve alſo for the *Election* and *Inauguration* of a *King*; and much rather than the great and famous *Monument* of **Stone-Heng** on *Salisbury* Plain; the very Diſparities betwixt *it* and thoſe in *Denmark*, brought by himſelf [g], being not to be found there.

89. For beſide that it is placed (as all ſuch *Courts* of the *Danes* were) 1. Upon a riſing *Ground*, for the Advantage of *Proſpect* (that the common People aſſembled to confirm the Suffrages or Votes of the *Electors* by their univerſal Applauſe, and congratulatory Acclamations, might ſee and witneſs the ſolemn Manner of *Election*:) 2. Made of huge *Stones* of no regular Figure. And thirdly, having no *Epigraph* or *Inſcription* cut or trenched in the *Stones*, as carrying a ſufficient Evidence of its Deſignment and Uſe, in the *Figure* of its *Platform*. It is but a *ſingle Cirque* of

[d] Olai Wormii *Mon. Danic. lib.* 1. *cap.* 10. [e] *Ibidem.* [f] Doctor *Charleton's Stone-Heng* reſtored to the *Danes*, *pag.* 46. [g] *Idem*, *pag.* 54.

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Stones without *Epiſtyles* or *Architraves*, few of them very high, on which the *Electors* might eaſily get up to give their *Suffrages*, as was uſually done in the *Northern Nations*; whereas **Stone-henge** is made up of *three Circles* at leaſt (ſome ſay *four*) and the *Stones* of each *Circle* joyned with *Architraves*, whereof there is no *Example* to be found in thoſe *Countries*.

90. Now that the *Northern Nations* uſually erected ſuch *Cirques* of rude Stones for the *Election* of their *Kings*, is fully teſtified by *Olaus Wormius*, *Reperiuntur, inquit, in his oris loca quædam in quibus* Reges *olim ſolenni ereabantur pompa, quæ cincta adhuc grandibus ſaxis, ut plurimum duodecim, conſpiciuntur, in medio grandiore quodam prominente, cui omnium ſuffragiis* Electum Regem *imponebant, magnoque applauſu excipiebant. Hic &* Comitia *celebrabant, & de* Regni *negotiis conſultabant.* Regem *vero deſignaturi* Electores *Saxis inſiſtebant forum cingentibus, decreti firmitudinem pronunciantes* [h], *i. e.* as Engliſhed by Dr. *Charleton* [i].

91. In this County are beheld certain *Courts* of *Parliament*, in which *Kings* heretofore were ſolemnly elected, which are ſurrounded with great *Stones*, for the moſt part twelve in Number, and *one* other *Stone* exceeding the reſt in Eminency, ſet in the Middle; upon which (as upon a *Regal Throne*) they ſeated the new elected *King*, by the general Suffrage of the Aſſembly, and Inaugurated *him* with great Applauſe and loud Acclamations. Here they held their great *Councils*, and conſulted about Affairs of the *Kingdom*: But when they met together to nominate their *Kings*, the *Electors* ſtood upright on the *Stones* environing the *Court*, and giving their *Voices*, thereby confirmed their choice.

92. The very ſame Practice of the *Northern Nations*, with the Ceremonies of it, are alſo briefly ſet down by *Saxo Grammaticus*, *Lecturi* Regem *veteres affixis humo Saxis inſiſtere ſuffragiaque promere conſueverunt, ſubjectorum tapidum firmitate, facti conſtantiam ominaturi* [k], *i. e.* that the *Ancients* being about to chooſe their *King*, uſed to ſtand upon *Stones* fixed in the ground, and thence give their *Votes*, by the Firmneſs of the *Stones* on which they ſtood, tacitly declaring the *Firmneſs* of their *Act*. Which manner of

[h] Olai Wormii *Monument. Danic. lib.* 1. *cap.* 12. [i] *Stone-Heng* reſtored to the *Danes*, *pag.* 84. [k] Saxon. Grammatici *Hiſt.* Danorum, *lib.* 1. *ſub initium.*

Election is alſo proved of them, by *Crantzius*, *Meurſius*, and *Bernhardus Malincort de Archicancellariis* [l].

93. Which places of *Election* it ſeems were held ſo *ſacred*, as further teſtified by *Wormius* [m], and out of *him* by Dr. *Charleton* [n], that in times of *Peace* the *Candidate King* was obliged, *de Jure*, there to receive his *Inauguration*, the Place and *Ceremonies* being accounted eſſential Parts of his *Right* to *Sovereignty*, and the *Votes* of his *Electors* much more valid and authentick for being pronounced in the uſual *Forum*.

94. But if it happened the *King* fell in a Foreign *Expedition* by the Hand of the *Enemy*, the *Army* preſently got together a Parcel of great *Stones*, and ſet them in ſuch a *Round*, as well ſometimes perhaps for the Interment of the *Corps* of the deceaſed *King*, as *Election* of his *Succeſſor*. And this, 'tis like, they did, 1. Becauſe they eſteemed an *Election* in ſuch a *Forum*, a good Addition of *Title*. And ſecondly, with all Expedition, becauſe by the Delay of ſuch *Election* too long, irreparable Damages many times accrued to the *Republick* thereupon [o]; which Practice of the *Danes* they both confirm, by the *Authorities* of *Stephanus Stephanius*, in his *Commentaries* on the firſt Book of *Saxo Grammaticus*'s Hiſtory of *Denmark*, and *Suaningius* a grave and faithful *Writer* of that Nation, though what they cite of the latter (if that be all *he* ſays) ſcarce proves quite ſo much.

95. Beſide the Erection of *Stones* in foreign Nations upon the Loſs of one *King*, and *Election* of another, what if I ſhould add that it's alſo very likely that the ſame might be done at the *Inveſtiture* of a *Conqueror* into a new acquired *Principality*. Thus why might not *Rollo*, either being compelled as a *younger Brother*, to leave *Denmark* or *Norway*, as was appointed by the *Law* of the former *Kingdom*, and to ſeek *him* a new *Seat* [p]; or forced from the latter for *Piracy* by King *Harold Harfager*, as in the Chronicle of *Norway* [q]; I ſay, why might not *Rollo* after good Succeſs againſt thoſe he invaded (as *Walſingham* ſays expreſly he was [r], though in another Place) be elected *King* by his *Followers*, and be *Inaugurated* here, as well as there, within ſuch a *Circle* of *Stones*, which bearing his *name* to this very Day,

[l] *De quibus vide* Olaum Wormium, *Mon. Dan. lib.* 1. *cap.* 12. [m] *Ibidem ſub finem.* [n] *Stone-Heng* reſtored to the *Danes*. *p.* 48. [o] Ol. Wormii *Mon. Dan. lib.* 1. *cap.* 12. *ſub Finem.* [p] Tho. Walſingham's *Ypodigma Neuſtriæ in principio.* [q] *Vid. Chronicon.* Norwegicum. [r] Tho. Walſingham's *Ypodigma Neuſtriæ in princip.*

and

and he being acknowledged both by *Bromton* [r] and *Florilegus* [s] to have beaten the *Saxons*, and to have tarried in this Nation a whole Winter, it is highly probable he might be.

96. For if we enquire into the *Origin* of the name of this *Cirque* of *Stones*, we ſhall find that Reich or Riic ſignifies a *Kingdom*, and ſometimes a *King*, as Eyn reich fraw, the *Queen*, or *King's Woman* [u]: Whence 'tis plain, that theſe *Stones* ſeem ſtill to be called the *Stones* of *King Rollo*, or perhaps rather of *Rollo*'s *Kingdom*, for it was cuſtomary for them to have ſo many *Cirques* of *Stones* as *Kingdoms*, though in the ſame *Country*. Thus, as *Wormius* teſtifies, there are three at this Day in the Kingdom of *Denmark*; one in *Seland*, another in *Schoneland*, and a third in the *Cimbrick* Territory, becauſe theſe were anciently three diſtinct *Principalities*, and under the Dominion of as many *Kings* [w], as 'tis certain *England* was alſo about this time.

97. And if this Conjecture may be allowed to take place, we are ſupplyed alſo with a Reaſon why we have no *Tumulus* in or near this *Monument*, there being no *King* or eminent *Commander* ſlain, but only a Conqueſt of the *Enemy* in or near this place, intimated by the *five Stones* meeting in a Point at the top; which perhaps may be the Diſpoſition intended by *Saxo Grammaticus*, and out of him by *Wormius*, *Cuneato ordine*, which he ſays expreſly ſignified, *Equeſtrium acies ibidem, vel prope, fortunatius triumphaſſe* [x] *i. e.* that Knights or Horſe-men there, or near the place, obtained a glorious Victory.

98. Yet againſt this Conjecture I fore-ſee there lie two *Objections* worth Removal. 1. That in theſe *Cirques* of *Stones* deſigned for the *Election* of *Kings*, there was always a Kongſtolen moſt times bigger than the reſt placed in the middle of it, as intimated above, §. 90. And ſecondly, that had this place been at firſt deſigned for the Inauguration of a *Daniſh* or *Norwegian* King, and ſuch places been ſo eſſential to a good *Title*, as pretended above, §. 93. Certainly all the Kings of the *Daniſh* Race that reigned after here in *England*, would have been either crowned here, or at ſome other ſuch *Forum*; whereas we have no ſuch Kongſtolen in the middle of the *Cirque*; and beſide, find

[r] Joh. Bromton *Abbat Jornal. in anno* 875. [s] Matth. Weſtmon. *in anno* 807. [u] *Vid.* Petri Daſypodii *Dictionar. Lat. German. in verb. Regno.* [w] Ol. Wormii *Mon. Dan. lib.* 1. *cap.* 12. [x] *Idem. lib.* 1. *cap.* 9.

Canutus

Canutus with great Solemnity crowned at *London*, *Harold Harefoot* here at *Oxford* (not far from this *Cirque*) and *Hardi-Canute* likewiſe at *London*.

99. To which it may be replied, that though not placed in the *Cirque*, yet here is a **Kongſtolen** not far off, which 'tis like was not neceſſary ſhould be ſet within it; for I find the *place* where the new *elected* King ſtood and ſhewed *himſelf* to the People, at the *Forum* for this Purpoſe at **Leire** in *Seland*, to have been without the *Area*, as our **Kongſtolen** is. *Area ſaxis undique cincta Coronationi Regum deputata vicinum habet Colles, cui Coronatus jam inſiſtebat jura populo daturus, & omnibus conſpiciendum ſe præbiturus* [y], *i. e.* that the *Area* encompaſſed with *Stones* deſigned for Coronation of the Kings, had a Hill near it, whence the new crowned King gave *Laws*, and ſhewed *himſelf* to the *People*; it ſeeming indifferent from hence, and another ſuch like *Hillock* called **Trollebarolhoy**, whereon the King alſo ſtood, at the place of ſuch *Election* near *Lundie* in *Scania* [z], whether he aſcended a *Stone* or *Mount* of *Earth*; within or without the *Area*, ſo he thence might be ſeen and heard by the *People*.

100. And to the ſecond Objection it may be reaſonably anſwered, that the *Danes* by this time having gotten the whole Kingdom, and ſuch capital Cities as *London* and *Oxford* were, might well change the Places of their Coronations: Beſide, *Canutus* and the reſt were much greater Perſons, and more civilized than *Rollo* and his *Crew*, can be preſumed to have been; for beſide that he lived above a hundred Years before them, we find him (though the Son of a *Norwegian* **Jorll**, or *Earl*) a great *Pyrate* at Sea [a], and little better than a *Robber* by Land; well might he therefore be contented with this *Inauguration*, after the old barbarous Faſhion, having gained no City wherein it might be done with greater Solemnity.

101. But as for the *Stones* near the *Barrow* at *Stanton-Harcourt*, called the *Devil's Coits*, I ſhould take them to be *Appendices* to that *Sepulchral Monument*, but that they ſeem a little too far removed from it; perhaps therefore the *Barrow* might be caſt up for ſome *Saxon*, and the *Stones* for ſome *Britans* ſlain hereabout (*aut vice verſa*) at what time the Town of Bigenham, about a Mile off, as *Camden* informs us, was taken from the *Britans* by *Cuthwolf* the

[y] *Idem lib.* 1. *cap.* 5. [z] *Idem lib.* 1. *cap.* 12. [a] *Vid. Chronicon.* Norwegicum.

Saxon

Saxon [b]. Which is all I can find worthy Notice concerning them, but that they are about eight Foot high, and near the *Baſe* ſeven broad; and that they ſeem not *natural*, but made by *Art*, of a ſmall kind of *Stones* cemented together, whereof there are great numbers in the Fields hereabout; which makes thus much for the Conjecture concerning thoſe at *Stone-Heng*, that they may be *artificial*, it being plain from theſe, that they could, and did do ſuch things in the ancienter times.

102. There ſtands alſo a Stone about half a Mile South-weſt of *Enſton* Church, on a Bank by the Way-ſide between *Neat-Enſton* and *Fulwell*, ſomewhat flat, and tapering upward from a broad Bottom, with other ſmall ones lying by it; and another near the Road betwixt *Burford* and *Chipping-norton*, which I gueſs might be erected for the ſame Purpoſe with the two former, as above-mention'd: Unleſs we ſhall rather think, both *theſe* and *them* to have been ſome of the *Gods* of the ancient *Britans*, as the Reverend and Learned Dr. *Stillingfleet* thinks it not improbable thoſe *Pyramidal Stones*, mention'd by *Camden* in *York-ſhire*, called the *Devil's Bolts* [c], ſometimes were. And ſo likewiſe *Stone-Heng* in *Wilt-ſhire*, which he judges neither to be a *Roman Temple*, nor *Daniſh Monument*, but rather ſomewhat belonging to the Idol *Markolis*, which *Buxtorf* ſaith the *Rabbins* called בית קולים *domum Kolis* [d]; of which more hereafter when I come into that County; and into *Kent*, where of *Kits-coty-houſe*, which I take to be an *Antiquity* of the ſame kind.

103. That the *Britans* long before the Arrival of the *Romans*, were acquainted with the *Greeks*, has ſufficiently I gueſs been made appear already, §. 66. of this *Chapter*; and that long before that they were known to the *Phœnicians*, and all the *Eaſtern* Countries, is plain out of *Strabo* [e], and *Bochartus* [f], and by Compariſon of the *Learning* and *Religion* of the *Druids*, with thoſe of the *Indian Brachmans*. Now that it was the ancient Cuſtom of all the *Greeks* to ſet up *unpoliſh'd Stones* inſtead of *Images*, to the Honour of their *Gods*, we have the Teſtimony of *Pauſanias* in theſe Words, τὰ δὲ ἔτι παλαιότερα, δὲ τοῖς πᾶσιν Ελλησι, τιμὰς θεῶν ἀντὶ ἀγαλμάτων εἶχον ἄργοὶ λίθοι [g]. *i. e.* that *unhewn Stones* amongſt all the *Grecians*, had the Honour of *Gods* inſtead of *Images*;

[b] *Vid.* Camd. *Britan. in* Oxfordſh. [c] *Idem in Com.* Ebor. [d] Joh. Buxtorfii *Lex.* Talmud. *in v. Markolis.* [e] Strabonis *Geographiæ*, *lib.* 3. *pag.* 175. *Edit.* If. Caſaub. Paris, *An.* 1620. [f] Sam. Bocharti *Geog. Sacr. part.* 2. *lib.* 1. *cap.* 39. [g] Παυσανίας Αχαϊκά. *pag.* 228. *Edit.* Sylburg.

more

more particularly the ſame *Author* aſſerts, that near the *Statue* of *Mercury* there were 30 ſquare Stones, πτισκαίδεκα λίθοι τρίακοντα, which the *Phanii* worſhip'd, and gave to every one of them the Name of a *God* [h].

104. That the *Arabians* and *Paphians* alſo worſhip'd ſuch like *Gods*, is likewiſe witneſſed by *Maximus Tyrius*. Ἀραβίων σέβεσι μὲν, ὄντινα δὲ ἴσασι τὰ δὲ ἀγάλματα ὁ λίθος, λίθος δὲ τετράγωνος. Παφίοις δὲ μὲν Ἀφροδίτη τὰς πρώτας ἔχει, τὸ δὲ διάγραμμα ἐκ λευκοῦ λίθου πυραμίδι ἐοικός [i]. *i. e.* that the *Arabians* worſhip'd he ſcarce knew what *God*, but that he ſaw amongſt them was only a *ſquare Stone*; and that the *Paphians* worſhip'd *Venus* under the Repreſentation of a *white Pyramid*.

105. And *Herodian*, deſcribing the *Worſhip* of *Heliogabalus* at *Emeſa* in *Phœnicia*, ſaith, that he had no kind of *Image* after the modern *Greek* or *Roman* Faſhion made by Men's Hands, λίθος δέ τις μέγας, στρογγύλος κάτω, λήγων εἰς ὀξύτητα, κωνοειδὲς αὐτὸ σχῆμα [k], *i. e.* but a *great Stone* round at the Bottom, and leſſening by Degrees toward the Top, after the manner of a *Cone*. To which add, that *Peter della Valle*, in his late Travels to the *Indies*, ſaith, that at *Ahmedabad* there was a famous *Temple* of *Mahadeu*, wherein there was no other *Image*, but a little *Column* of Stone after a *Pyramidal* Form; which *Mahadeu*, he ſaith, in their Language ſignifies the great *God* [l]. And after this Faſhion he ſaith, 'tis the Cuſtom of the *Brachmans* to repreſent *Mahadeu* [m].

106. All which being put together, eſpecially as recommended by ſo Learned a Perſon as the Reverend Dr. *Stillingfleet*, have prevailed with me much: However, the Reader is free to uſe his Judgment, whether they are *Memorials* of the *Dead*, as commonly thought, or Repreſentations of the *Deities* of the ancient *Britans*, given them by ſome Companions of the Eaſtern *Merchants* trading hither for *Tin*, to the *Caſſiterides*.

107. Other *Antiquities* contemporary with the *Stones* above-mentioned, I met with none here in *Oxford-ſhire*, but thoſe three Rings linked one within another, and engraven by Miſtake a little out of their Place, *Tab.* 16. *Fig.* 4. for that they are not like to be *Britiſh* or *Roman*, I think is pretty certain. The *Britans*, 'tis true, uſed *Rings* inſtead of *Money*, yet as *Cæſar* teſtifies, they were only of *Iron* [n]. And though the *Romans*, among their other *dona militaria*,

[h] *Ibidem.* [i] Max. Tyrii *Diſſert. Philoſoph.* 38. *p.* 384. *Edit.* Dan. Heinſii. [k] Herodiani *Hiſtoriar. lib.* 5. *pag.* 114. *Edit.* Hen. Stephani. [l] Pet. della Valle *Viaggi*, *p.* 3. *Let.* 1. §. 15. *p.* 107. [m] *Ibidem.* [n] Jul. Cæſaris *Comment. de bello* Gallico, *lib.* 5.

did

did uſually give *Calbeos* [o], *ſive armillas*, *Bracelets*, yet they were conſtantly I find, either of *Gold* or *Silver*; whereas *ours*, as in number, are of three different Materials; the largeſt *Copper*, the ſecond *Iron*, and the leaſt *green Glaſs*, or ſome *Stone* of that Colour.

108. It remains they muſt therefore be either *Saxon* or *Daniſh*, but whether of the two, we muſt not hope to determin, ſince we find ſuch *Rings* uſed by both *Nations*. That the *Saxons* had ſuch *Bracelets*, is plain from King *Ælfred*, who notwithſtanding he came to the Kingdom, long habituated as it were to *Rapines* and *Murders*, yet brought it before his Death into ſo good a Poſture, (as is learnedly made out, and by what Degrees he did it, in that excellent *Hiſtory* of his *Life*) that he could, and did hang up ſuch *Bracelets* of *Gold* in the High-ways, which no *Traveller* dared touch. Ælfredus *per publicos aggeres, ubi ſemitæ finduntur in quadrum, Armillas jubebat aureas appendi, ut Viantium aviditatem irritaret, cum non eſſet qui eas acciperet*, ſays *Florilegus* of him [p]. Where, by the way, perhaps it may not be amiſs to note, that theſe *Rings* were drawn out of the River *Cherwell* with a Fiſhing-net, near *Hampton-Gay*, not far from the Meeting of ſuch Ways at *Kirklington*, and kindly beſtowed on me by my worthy Friend Mr. *Barry*, amongſt ſome other Matters of like Nature, though not ſo fit to be mention'd here.

109. And that the *Danes* alſo made the ſame *Experiment* of the Innocency of the People, and of univerſal Peace and Freedom from Rapine, is as manifeſt out of *Saxo Grammaticus*, who ſays expreſly of *Frotho* the *Great*, *Ut uniuſcujuſque rem familiarem a furum incurſu tutam præſtaret, Armillam unam in Rupe, &c* [q]. *i. e.* that he might preſerve every Man's Goods from the Spoils of *Thieves* and *Robbers*, hung up a *Bracelet* of *Gold* on the *Rock* called after his own Name, *Frothonis petram*; and another in the *Province* of *Wig*, threatning great Severity to the *Preſidents* of thoſe *Countries*, if they ſhould be taken away. They uſed them alſo (like the *Romans*) as *Rewards* of *Valour*, as appears from the Offer of King *Roricus*, of his *ſix Bracelets* to any Man that would undertake the *Champion* of the *Sclavi* (his Enemies) challenging any Man in his Army [r]; and ſometimes too as *Rewards* of *Wit*, as the ſame *Author* informs

[o] *Vid.* Sexti Pomp. *Feſti*, *Fragment. libro* 3. [p] Matth. Weſtmon. *Flores Hiſt. in An.* 892. [q] Saxon. Gram. *Hiſtor. Danic. lib.* 5. *p.* 46. *Edit. Operin.* [r] *Idem, lib.* 3. *pag.* 24. *D.*

us, *Wiggo* being honour'd with a great *Armilla* by *Rolvo Krage*, for a Jeſt[r]; and *Refo*, by *Goto* King of *Norway*, *ideo tantum quod eum cultius & familiarius habuiſſet* [s].

110. Theſe *Armillæ*, the *Danes* and other Northern *Nations* accounted ſo ſacred, that as *Bartholin* informs us out of *Arngrimus*, the *Iſlanders* uſually ſwore upon them, *Cujus religionis fuit ritus, ut juramentum præſtituri, adhibitis teſtibus Annulum in Ara Deorum aſſervari ſolitum, & in foro Judiciali a Judice ſupremo in brachio geſtatum, hoſtiarumque ſanguine illinitum, attrectarent* [u], *i. e.* that the Manner of People to be *ſworn* was, that before *Witneſs* they ſhould lay their Hands on a certain *Ring*, uſually kept upon the *Altar* of their *Gods*, worn upon the Arm of the *Chief Juſtice* (whence 'tis plain it was an *Armilla*) and ſmeared over with the Blood of their *Sacrifices*. And *Ethelwerdus* and *Aſſerius* both acquaint us, that King *Ælfred* having gotten conſiderable Advantage over the *Danes*, made them ſwear (beſide on his own *Reliques*) *in eorum Armilla ſacra, quod cæterarum Regionum* Regibus *fecere nunquam* [w], *i. e.* upon their holy *Bracelet*, which they had never done before to the Kings of any other *Nation*.

111. Which *Armillæ* it ſeems were ſometimes ſingle, and ſometimes curiouſly link'd together. Thus the *ſix Bracelets* of King *Roricus* above-mentiond, are ſaid to have been, *ita mutuis nexibus involutas ut ab invicem ſequeſtrari nequirent, nodorum inextricabiliter ſerie cohærente* [x], *i. e.* ſo inextricably involved one within another, that there was no parting them. The Learned *Bartholin* alſo informs us, that ſometimes the *Armilla* had a *Ring* hung to it. *Eſt tamen Armillæ ſuus quandoque circulus* [y]: And that when *Rings* are thus hung to *Bracelets*, there is always ſome *Myſtery* in it, *quod annuli Armillis fere jungantur non caret myſterio* [z]. Where by *Armillæ* he means φίλλια, or περιχείρια, *Ornaments* for the *Wriſts*, and by *annuli* and *circuli*, *Ornaments* for the *Fingers*: *Armillæ id brachio præſtant, quod digitis annuli* [a], *i. e.* that *Bracelets* have the ſame uſe on the *Wriſt*, that *Rings* have on the *Finger*.

112. Now that ours was an *Armilla*, is plain enough, for that the great *Copper* Ring is of ſomewhat above three Inches *Diameter*, and big enough to encompaſs any ordinary

[r] *Idem, lib* 2. *pag.* 16. *C.* [s] *Idem, lib.* 8. *pag.* 83. *C.* [t] Tho. Bartholini *Schedion de Armillis veterum*, §. 7. *p.* 98. [w] *Chronicorum* Ethelwerdi, *lib.* 4. *in An.* 876. *vid. etiam Aſſerium* Menevenſ. *in eodem An.* [x] Sax. Gram. *Hiſt.* Dan. *lib.* 3. *p.* 24. *D. Edit. Operin.* [y] Tho. Bartholin. *Schedion de Armillis Veterum*, §. 4. *p.* 41. [z] *Idem*, §. 4. *in principio.* [a] *Ibidem.*

Man's

Man's Wriſt; the leſſer *iron* one, and *green Ring* of *Glaſs*, being additional *Ornaments*, eſpecially the latter, which queſtionleſs was put on to repreſent an *Emrauld*; that ſort of *Stone*, as *Pignorius* and *Bartholin* both teſtify, being much uſed in *Bracelets*[b]: which makes me think it the *Bracelet* but of ſome ordinary Perſon, the *Armilla* it ſelf being *Copper*, with which, ſaith *Bartholin*, only the vulgar adorned themſelves, *Armillæ æreæ, plebeæ cenſendæ ſunt*[c], and the *appendent Glaſs* but a counterfeit *Jewel*.

113. For eminent places in this *County*, during the Government of the *Saxons* and *Danes* in *Britan*, we may reckon firſt *Banbury*, then called Bannerbyrig, where *Kenric*, the ſecond *Weſt-Saxon* King, about the Year 556 *, put to flight the *Britans*, fighting for their Lives, Eſtates, and all they had [d]. After the *Conqueſt*, about the Year 1125, it was ſtrengthened with a *Caſtle* by *Alexander* the then great Biſhop of *Lincoln*; and ſince that, *Jan.* 26. 1° *Mariæ*, made a *Burg* or *Burrough* conſiſting of a *Bayliff*, 12 *Aldermen*, and 12 *Burgeſſes*, in Recompence of their faithful Service done to the ſaid Queen *Mary* (as 'tis expreſt in their *Charter*) in manfully reſiſting *John* Duke of *Northumberland* that rebelled againſt her; whence 'tis plain this *Town* was ever *zealous* in Matters of *Religion*, of what Perſwaſion ſoever they were, heretofore as well as now. Since again on the 8 of *June*, *Jac.* 6, it was made a *Major Town*, conſiſting of a *Major*, 12 *Aldermen*, and 6 *Capital Burgeſſes*.

114. And ſecondly, *Benſon*, alias *Beneſingtune* *; which *Marian* (ſays *Camden*) calls *villam Regiam*, the King's *Town*, and reporteth that *Ceaulin*, the third King of the *Weſt-Saxons*, about the Year 572, took it from the *Britans*, which his Succeſſors kept 200 Years after, till they were diſpoſſeſt again by *Offa*, the great King of the *Mercians* [e]. And thirdly, though *Dorcheſter* has its Name from the *Britiſh Dour*, which ſignifies *Water*, and therefore called by *Leland*, *Hydropolis*; and ſeems to have been known to the *Romans* by the *Money* found thereabout, and the *Latin* Termination *Ceſter*, which, ſays *Leland*, the *Saxons* applied to *Cities* as well as *Fortifications* [f]; yet it never came to its height till *Birinus*, *An.* 614. was ſeated there as Biſhop of the *Weſt-Saxons*, by Cynigelſe their King, whom

[b] *Vid.* Laurentium Pignorium *de Servis*. Et Bartholin. *Schedion de Armillis*, §. 3. *p.* 37. [c] *Idem*, §. 3. *de Armillarum materiâ*, *p.* 32. * *Vid. Chron.* Saxon. *p.* 20. [d] Camd. *Britan. in* Oxfordſhire. * Will. Malmesb. *de geſtis Reg.* Ang. *lib.* 1. *cap.* 2. [e] Camden *Britan. in Com.* Oxon. [f] Lelandi *Com. in Cygneam Cant. in verbo Hydropolis*.

he had newly Baptized, and *Oſwald* King of *Northumberland*, God-father to *Cynigelſe* [g].

115. About this time the Town of *Berenceſter*, alias *Bernceſter*, in *Saxon* Bupenceaſtep, and Bepnaceaſtep, which I take to have been its *primitive* Names, ſeems alſo to have been raiſed, and to have taken its Name, as ſome have thought, from the ſame Biſhop *Birinus*, *quaſi* Birini *caſtrum*: But I much rather believe it ſo called from *Bern-wood*, or Forreſt, mention'd by *Bede* [h], *Florilegus*, and *Wigornienſis* [i], upon the Edge wherefore it was then ſeated, nor is now far off it; after which perhaps from St. *Eadburg*, to whom the *Priory* there was, and *Pariſh Church* is now dedicated, it changed its Name to *Burgceſter*, and ſince that to *Burceſter*, now *Biſſeter*.

116. The Town of *Burford*, in *Saxon* Beopppopo, ſeems alſo to have been a place of good *Antiquity*, but moſt remarkable for a *Battle* fought near it, about the Year 750 [k], perhaps on the place ſtill called *Battle-edge*, Weſt of the Town betwixt *it* and *Upton*; between *Cuthred* or *Cuthbert*, a Tributary King of the *Weſt-Saxons*, and *Ethelbald* the *Mercian*, whoſe inſupportable Exactions the former King not being able to endure, *he* came into the Field againſt *him*, met and overthrew *him* here about *Burford*, winning his *Banner* wherein there was depicted a *golden Dragon* [l]; in Memory of which *Victory*, perhaps the Cuſtom (yet within Memory) of making a *Dragon* yearly, and carrying it up and down the Town in great *Jollity* on *Midſummer* Eve, to which (I know not for what Reaſon) they added a *Gyant*, might likely enough be firſt inſtituted.

117. After the Conqueſt, I find the Town of *Robert* Earl of *Gloceſter*, baſe Son to King *Henry* the Firſt, to whoſe Son *William* I have ſeen an *Original Charter* granted him by K. *Henry* II. giving to this his Town of *Bureford*, *Gildam & omnes conſuetudines quas habent liberi Burgenſes de* Oxeneford; moſt of which it has ſince loſt, and chiefly by the the over-ruling Power of Sir *Lawrence Tanfield*, Lord chief Baron in Queen *Elizabeth*'s time: Yet it ſtill retains the Face of a *Corporation*, having a *common Seal*, &c. the very ſame with *Henley*, as diſcribed in the *Map*, if they differ not in Colours, which I could not learn.

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[g] *Ven.* Bedæ *Hiſt. Eccleſiæ Gent.* Angl. *lib.* 3. *cap.* 7. [h] *Chronologia* Saxonica, *in An.* 921. [i] Matth. Weſtmon. & Florent. Wigorn. *in An.* 918. [k] Rog. Hoveden *Annal. Part. priori in An. citat.* [l] Camd. Britan. *in Com.* Oxon.

118. As

118. As for *Wuduſtoke*, or *Wudeſtoc*, in *Saxon* ꝓuðerꝛoc (*i. e. locus ſylveſtris*) now *Woodſtock*, it ſeems to have been a *Seat Royal* ever ſince the Days of King *Ælfred*, it appearing by a MS. in Sir *John Cotton*'s Library, that he tranſlated *Boetius de Conſolatione Philoſophiæ* there [m]. Nay, ſo conſiderable was it in the time of King *Æthelred*, that he called a *Parliament* there, and Enacted Laws, to be ſeen amongſt that *Collection* of ancient Laws ſet forth by Mr. *Lambard* [n]. Whence it may almoſt be certainly concluded, that here muſt have been a *Houſe* of the Kings of *England*, long before the Days of King *Henry* the Firſt; who yet 'tis like indeed was the firſt that incloſed the *Park* with a *Wall*, though not for *Deer*, but all foreign *wild Beaſts*, ſuch as *Lions*, *Leopards*, *Camels*, *Linx*'s, which he procured abroad of other *Princes*; amongſt which more particularly, ſays *William* of *Malmesbury*, he kept a *Porcupine*, *hiſpidis ſetis coopertam, quas in Canes inſectantes naturaliter emittunt* [o], *i. e.* cover'd over with ſharp pointed *Quills*, which they naturally ſhoot at the *Dogs* that hunt them.

119. Of the Town of *Thame*, anciently Tamerꝛcpoa, I could find little, 'till about the time of *Edward Senior*, *An.* 921, when the *Daniſh* Army out of *Huntingdon* came hither and erected ſome kind of *Fortification*; but at this time it ſeems it was ſo conſiderable, that it had the Reputation of a *Burg*; for King *Edward* coming againſt it the ſame Year, his *Army* is ſaid to have beſieged the *Burg* and taken it, and to have ſlain the *Daniſh* King, Earl Toglof, and Earl Oanaan his Son, his Brother, and all others whatever within the Town [p]. And again, *An.* 1010, when the *Danes* overran moſt of this part of *England*, we find this Town amongſt others to have ſuffered much by them [q].

120. *Chippingnorton*, anciently Ceapan-nopꝛune, was alſo moſt certainly a Town of Note in the *Saxon*'s Days, as one may gather from its Name, it being ſo called from Ceapan *Emere*, to buy or *cheapen*, ſo that it implies as much as *Market Norton*, or *Norton* where the people uſually *cheapened* Wares. And *Whitney*, now *Witney*, ſeems to have been a Town of good Repute before the *Conqueſt*, it being given about the Year 1040, to the Church of St. *Swithins Winton*: with eight other *Manors*, by *Alwinus* then Biſhop of that *See*, who for his over-familiarity with *Emma* Mother to

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[m] *MS. in Biblioth. Cottonianâ, ſub Othone. A.* [n] Apxaıonomıa Gul. Lambard, *fol.* 82. [o] Will. Malmesburienſ. *de Hetr. 2. lib. 5.* [p] *Chronologia* Saxonica, *in anno* 921. [q] Joh. Bromton *Abb. Jornal. in anno citat.*

K. *Edw.*

K. *Edward* the *Confeſſor*, was Cauſeleſly ſuſpected of *Adultery* with *her*: Of which Suſpition Queen *Emma* purging herſelf and him by the *Fire Ordeal*, by walking Bare-foot over nine *red-hot Plow-ſhares* without Hurt; in Thankfulneſs ('tis ſaid) they each gave nine *Manors* to the Church of *Winchester*, which are all named by Mr. *Dugdale*, *Witney* being one of thoſe given by *Alwinus* [r].

121. And the neighbouring Town of *Bampton*, anciently Bemtune, ſeems to be of much about the ſame *Antiquity*, yet neither can I find any higher *Record* of it, than of *Leofric* Chaplain to King *Edward* the *Confeſſor*, who *An.* 1046, upon the Union of the Biſhopricks of *Criditon* and *Cornwal*, and both of them tranſlated to *Exeter*, whereof he was made the firſt Biſhop, quickly after gave to this his new Church his lanb æt Bemtune [s], to which it belongs to this very Day.

122. Which is all I could meet with of the Towns of *Oxford-ſhire* before the Conqueſt (for after long Search I could find nothing of *Deddington*, till about the Reign of King *Edward* the II. whereof when I come to ſpeak of the Caſtle there) concerning which I could have added much more, and brought their *Hiſtory* down to theſe times, as above in *Banbury*; only *that*, and whatever elſe is worthy Notice of them, may be found in ſome other *modern Hiſtories*.

123. Yet before we come to the *times* ſince the *Conqueſt*, let us firſt remember that the Town of *Iſlip*, *Sax.* Gıhtrlepe, or Gibtrlepe, muſt needs be of good repute in thoſe Days, for *Camden* ſays expreſly, and ſo do ſeveral other *Authors*, that King *Edward* the *Confeſſor* was born there, which they prove from his Original *Charter* of *Reſtoration* of the *Abby* of *Weſtminſter*, wherein he gives to this his new Church the Town of *Iſlip*, with the additional Clauſe of [*the place where he was born* [t]] which though, 'tis true, I could not find in Mr. *Dugdale* [u], yet here remaining ſome Foot-ſteps of the ancient *Palace*, and a *Chappel* now put to profane Uſe, called the King's *Chappel*, and the *Town* ſtill belonging to the Church of *Weſtminſter*, there is no great doubt to be made of the thing, *Tradition* it ſelf being not like to be erroneous in a Matter of this Nature, though there were no ſuch *Charter* to prove the thing alleged, which yet we have Reaſon to believe there is, or was, though not produced by Mr. *Dugdale*.

[r] *Monaſtici* Anglicani, *vol.* 1. *inter addenda*, *pag.* 980. [s] *E Cod. vet MS. in Bib. Bod. fol. Med.* 120. *in princip.* [t] Camd. Britan. *in Com.* Oxon. [u] *Vid. Monaſticon* Angl. *vol.* 1. *p.* 59.

124. In

124. In the *Chappel* above-mentioned, not many Years ſince, there ſtood (as was conſtantly deliver'd down to Poſterity) the very *Font*, wherein that Religious Prince, St. *Edward* the *Confeſſor*, received the *Sacrament* of *Baptiſm*: which, together with the *Chappel*, in theſe latter Days being put to ſome indecent at leaſt, if not profane Uſe, was carefully and piouſly Reſcued from it, by ſome of the Right Worſhipful Family of the *Brown*'s of *Nether-Kiddington*, where it now Remains in the *Garden* of that Worthy Gentleman Sir *Henry Brown* Baronet, ſet Handſomely on a *Pedeſtal* as exactly repreſented *Tab.* 16. *Fig.* 6. and adorned with a *Poem* rather Pious than Learned, which yet I think I had put down, but that it is imperfect.

125. Which Holy King *Edward* was the firſt to whom was granted the Gift of *Sanation*, only with the touch of his Hand, of the Diſeaſe called the *Struma*, or *Scrofula*, and in Engliſh upon this account, the *King's Evil*; which as a Mark of *God*'s moſt eſpecial Favour to this *Kingdom*, has been tranſmitted with it, as an *Hereditary Gift* to all his *Succeſſors*: Every *Sacred* Hand in all Ages ever ſince, that has held the *Scepter* of this moſt Happy and now Flouriſhing *Kingdom*, having been ſignally Bleſt by divers and undoubted *Experiments* of healing that Diſeaſe.

126. Before they *Touch* for this Diſtemper, they have always *Prayers* read ſuitable to the *Occaſion*, both which when performed, the King forthwith beſtows on every *Patient*, a piece of *Angel-gold* purpoſely Coined, and put upon a *White Ribbon* to be hung about the Neck; which as long as worn preſerves the virtue of the *Touch*, though Dr. *Tooker* will have it only, *Sanitatis ſymbolum inchoatæ, & Eleemoſynæ ſacræ monumentum*[w], *i. e.* a Mark that the *Cure* is already begun, and a laſting Memorial of the King's Charity and Piety to the poor *Patients*.

127 However it be, that this was the Cuſtom *ab initio*, I take to be plain from that piece of *Gold* of King *Edward* the *Confeſſor*, *Tab.* 16. *Fig.* 5. found in St. *Giles*'s Field in the Suburbs of *Oxon.* having *initial Letters* of his Name over the hinder part of the Head, and two ſmall *Holes* through it, as if deſigned to be hung on a *Ribbon* for the purpoſe above-mention'd, the *Holes* being ſtrengthned with Gold *Wire* faſtned round them, and to the piece it ſelf, much after the faſhion of the *Eye* of a Man's Doublet, as exactly deſcribed in the Figure, *ut ſupra*; which piece was

[w] Guil. Tookeri *Chariſma ſive donum Sanationis, Reg. Ang. collatum conceſſum.*

lent

lent me by that Courteous Gentleman Sir *John Holeman* Baronet, in whose Poſſeſſion it now remains at his Houſe near *Northampton*.

128. From King *Edward* the *Confeſſor* being born at *Iſlip*, 'tis eaſy to collect, that his Father King *Æthelred* muſt neceſſarily have had a *Royal Seat* there, as in all Probability likewiſe at *Heddington* near *Oxford*; for though Tradition now goes, that it was but the *Nurſery* of the King's Children, whereof there remains yet upon the Place ſome Signs of Foundations in a Field near the Town, called *Court-cloſe*; yet it is plain that King *Æthelred* did ſometimes at leaſt reſide there himſelf, for he concludes a *Charter*, or ſome ſuch like *Inſtrument*, wherein he grants *Priviledges* to the Monaſtery of St. *Frideſwide* here in *Oxford* of his own *Reſtoration*, in Engliſh thus, **This privilege was with at Heddington**; and after in *Latin*, *Scripta fuit hæc Cedula juſſu præfati Regis in villa Regia quæ . . . appellatur, die octavarum beati Andreæ Apoſtoli, his conſencientibus . . . qui ſubtus notati videntur. Ego* Æthelredus *Rex hoc privilegium*, &c [x].

129. Beſide *theſe*, the Kings of *England* had ſeveral other *Seats* within this *County* (not to mention again that *Woodſtock* was one, or that old *Alcester* was the *Seat* of *Alectus*) ſuch as *Beaumont*, juſt without the *Suburbs* of *Oxford*, the Birth-place of the valiant King *Richard* the Firſt. *Langley*, upon the Edge of the *Foreſt* of *Whichwood*, a ſeat, as Tradition has deliver'd it down to us, of the unhappy King *John*, who perhaps during the time of his *Reſidence* here, might indeed build the Caſtle of *Bampton*, which alſo Tradition informs us was of his Foundation. And *Ewelm*, built indeed by *William de la Pool* Duke of *Suffolk*, who marrying *Alice* the Daughter and Heir of *Thomas Chaucer*, had a fair Eſtate hereabout; but after, upon the Attaindure of *John* Earl of *Lincoln*, and *Edmund* his Brother, Grandchildren to the Duke, it came to the Crown in the Days of King *Hen.* 7. and was afterward made an *Honor*, by laying unto it the Manor of *Wallingford*, and ſeveral others, by King *Hen.* 8. All which *Houſes* are mark'd out in the *Map*, by the Addition of a ſmall imperial *Crown* placed ſomewhere near them.

130. As all Places that gave Title to ancient *Barons*, moſt of whoſe Families long ſince have been extinguiſh'd, are mark'd with a *Coronet*; ſuch are, 1. The *Baronies* by an-

[x] *Monaſticon* Anglican. *Vol.* 1. *inter addenda, pag.* 984.

cient

cient *Tenure*, which were certain *Territories* held of the King, who ſtill reſerved the *Tenure* in *chief* to himſelf: whereof the ancienteſt in this County were thoſe of *Oxford* and St. *Valeric*, the Head of the latter being the Town of *Hoke-Norton* [y], both given by the *Conqueror* to *Robert D'Oyly* who accompanied *him* out of *Normandy* [z]. 2. The *Barony* of *Arſic*, belonging to *Manaſſer Arſic*, who flouriſh'd *An.* 1103, 3 *Hen.* 1. the Head of which *Barony* was *Coggs* near *Witney*, *Summerton* and *Hardwick* in this County being other Members of it. 3. The *Barony* of *Hedindon*, now *Heddington*, given the 25 of *Hen.* 2. to *Thomas Baſſet* in *Fee-farm*, whoſe Son *Gilbert* the Founder of *Biſſeter Priory*, in the firſt Year of *Richard* the Firſt, was one of the *Barons* that attended at the *Coronation*. And theſe are all the *Baronies* of ancient *Tenure* that were heretofore in *Oxford-ſhire*.

131. In the Beginning of the Reign of King *Edward* the Firſt, there were ſeveral other able Men ſummon'd as *Barons* to *Parliament*, that had not ſuch *Lands* of ancient *Tenure*, as thoſe above had, which were therefore ſtiled *Barons* by *Writs* of *Summons* to *Parliament*. The firſt of theſe in *Oxford-ſhire* was *William de Huntercomb* (whoſe *Seat* ſtill remains by the ſame name in the Pariſh of *Tuffield*) who was ſummoned to *Parliament* by the King's *Writ*, bearing Date the 23. of *Edward* I. The Second, I find, was *Joh. Gray* of *Rotherfield*, whoſe *Anceſtors*, being of a younger Houſe of *Walter Grey* Arch-Biſhop of *York*, had *Rotherfield* given them, beſide many other Poſſeſſions by the ſaid Arch-Biſhop. He was ſummoned firſt to *Parliament* the 25 of *Edward* I.

132. And ſo was Thirdly, his next Neighbour *Ralph Pipard* of the other *Rotherfield*, in the ſame Year of the ſame King, their *Seats* having now almoſt quite changed their *Names*, for thoſe of their *Owners*; one of them ſeldom being called otherwiſe than *Pipard* or *Pepper*, and the other *Grays*. Alſo Fourthly, *John* Baron *Lovel*, of *Minſter-Lovel*, whoſe *Anceſtors* though *Barons* by *Tenure* many Years before, as ſeiſed of the *Barony* of *Caſtle Cary* in *Somerſetſhire*, yet diſpoſſeſt of that I know not by what means, received *Summons* to *Parliament* whileſt ſeated here at *Minſter*, 25 of *Edw.* I.

133. The Fifth of theſe *Barons* was *Hen. de Tyes*, who having a Grant of *Sherbourn* here in *Oxford-ſhire* from

[y] Camd. Britan. *in Com.* Oxon. [z] *Monaſticon. Angl.* vol. 2.

Richard Earl of *Cornwall*, *temp. Hen.* 3. which *Sherbourn* had formerly been a part of the *Barony* of *Robert de Druis*, was ſummoned to Parliament the 28 of *Edw.* 1. And ſo was Sixthly, *John de la Mare* of *Garſington*, the very ſame Year. To which ſhould be added, the *Barons* by *Letters Patents* of *Creation*, ſo firſt made about the 11 of *Rich.* 2. But of theſe, whoſe *Barony* is now vacant, there is only, Seventhly, the Lord *Williams*, ſolemnly created Lord *Williams* of *Thame* the firſt of *April*, 1° *Mariæ*, who had alſo *Summons* the ſame time to the *Parliament* then ſitting, but his *Patent* it ſeems was never enrolled.

134. For this Account of theſe *Baronies*, I acknowledge my ſelf beholding to that Learned *Antiquary*, *William Dugdale* Eſq; *Norroy* King at *Arms*, in whoſe elaborate *Volumes* of the *Baronage* of *England*, the Reader may receive more Satisfaction concerning them. Yet beſide theſe, as the People will have it, the *Manor* of *Wilcot* was the Head of a *Barony*, one of the *Barons* whereof, as Tradition tells them, lies buried under a fair *Monument* in *North-Leigh* Church: But the Writings of the preſent *Proprietor*, my worthy Friend Mr. *Cary* of *Woodſtock* (whom yet I found inclined to believe ſome ſuch thing) being then at *London*, whereby otherwiſe it poſſibly might have been proved, and the Teſtimony of the People too weak an Evidence to build upon; I have rather choſen to forbear, than add a *Coronet* to the place.

135. Beſide the *Saxon* and *Daniſh* Fortifications abovementioned, there are others here in *Oxford-ſhire* of a later Date, either quite *raſed*, or in a manner uſeleſs, and ſome of them too, known but to few; wherefore I have thought fit to give this ſhort account of *them*. To paſs by therefore the Caſtle of *Oxford*, ſo well known to be built by *Robert D'Oyly* who came in with the Conqueror, and the Caſtles of *Bampton* and *Banbury* ſpoken of before: the firſt that preſents it ſelf to my Conſideration, is the old Caſtle of *Deddington*, formerly *Dadhington* [a], which I take to be ancient, and the very place no queſtion to which *Aymer de Valence*, Earl of *Pembroke*, brought *Piers de Gaveſton* the great Favourite of King *Edward* the Second, and there left him to the Fury of the Earls of *Lancaſter*, *Warwick*, and *Hereford*, who carrying him to *Warwick*, after ſome time, cauſed *him* to be beheaded in a place called *Blaklaw*, in their own preſence [b].

[a] Thomas de la Moor *in Hiſt. vitæ & mortis* Edw. II. *in princip.* [b] *Ibid.*

136. Se-

136. Secondly, the Caſtle of *Ardley*, the Foundations whereof are yet to be ſeen in a little Wood Weſt of the Town, which if any heed may be given to the *Tradition* of the Place, flouriſh'd about the time of King *Stephen*: and ſo perhaps Thirdly, might *Chipping-norton* Caſtle; free leave being given at the beginning of his Reign, to all his Subjects to build them Caſtles, to defend him and them againſt *Maud* the *Empreſs*, which at laſt, finding uſed ſometimes againſt *himſelf*, he cauſed no leſs than eleven hundred of theſe new built Caſtles to be raſed again, which no doubt is the cauſe we find no more of them, but their bare *Foundations* and *Trenches*.

137. But fourthly, the *Caſtle* of *Middleton*, now *Middleton-ſtony*, was none of theſe, for I find *Richard de Camvil* had *Livery* given him of *Middleton-Caſtle* in *Oxford-ſhire* (which muſt needs be this) the tenth of K. *John*, as part of his own *Inheritance* by Deſcent from his Father [c]. And fifthly, as for the Ruins of old Fortifications at *Craumerſh*, or *Croamiſh-Giffard* near *Wallengford*, I take them either for the Foundations of that *Wooden Tower* Erected by K. *Stephen*, in the Year 1139, when he beſieged *Maud* the *Empreſs*, and her Brother *Robert* Earl of *Glocester* in *Wallengford-Caſtle* [d], or elſe of the *Caſtle* of *Craumerſe*, or *Croamiſh* it ſelf, built by the ſame King *Stephen* at another Siege of *Wallengford*, *An.* 1153, which *Henry Fitz-Empreſs* endeavouring to raiſe, and bringing King *Stephen* to great ſtraits, they came at laſt to an accord concerning the Kingdom of *England* [e].

138. There are ſome other *Antiquities* of yet later date, that I have met with in *Oxford-ſhire* alſo, perhaps worthy notice, ſuch as that odd *bearded Dart*, *Tab.* 16. *Fig.* 7. having the *beards* iſſuing from it, not as uſually one againſt another, but one lower and the other higher, perhaps thus contrived for its eaſier paſſage in, and as great or greater difficulty to get it out of a Body; which were it not for the too long diſtance of time, I ſhould be willing to take for the *Materis*, *Mataris*, or *Matara*, the *Britiſh long Dart*, which were uſually thrown by thoſe that fought in *Eſſedis* [f]. But the *ſtem* of it being *Wood*, and not very hard neither, I cannot afford it to be above 200 Years ſtanding, or thereabouts: Nor can I add more concerning it, but that it was found ſomewhere about *Steeple-Barton*, and given me by the Worſhipful *Edward Sheldon* Eſq;

[c] See Mr. *Dugdale*'s Baronage of *England*, *vol.* 1. *Bar. Camvil.* [d] *Chronica* Gervaſii Dorobornenſis, & Floren. Wigorn. *in an. citato.* [e] *Chron.* Gerv. Doroborn. *in an. citato.* [f] Jul. Cæſar. *Comment. de bello* Gallico, *lib.* 4.

139. Yet the *Stone* engraven *Tab.* 16. *Fig.* 8. dug up in the *Garden*, and then in the Poſſeſſion of the Right Worſhipful Sir *Thomas Spencer* Baronet, a moſt cordial *Encourager* of this *Undertaking*, can ſcarce be allowed ſo ancient as *that*, the *Character* upon it in *Rilieve* Work being certainly *China*: For unleſs we may imagin it brought thence in the Days of King *Ælfred*, by *Swithelin* Biſhop of *Sherbourn*, *Qui detulit ad Sanctum* Thomam *in India Eleemoſynas Regis* Aluredi, *& incolumis rediit* [g], *i. e.* who carried the Offerings of King *Alfred* to the Church of St. *Thomas* in *India*, and returned ſafe, we can by no means allow it to have been here 180 Years; that *Country* having been quite loſt again to the *Weſtern* part of the *World*, till *Vaſquez Gama* was ſent by *Emanuel* King of *Portugal* to make new Diſcoveries, in the Year 1497. In which Year, though he recovered the way again to the *Eaſt-Indies*, yet *Fernandus Andradius* diſcover'd not *China* till 1517 [h]. So that provided this *Stone* (which is very unlikely) were brought thence by ſome of *Andradius* his Company the very firſt *Voyage*, yet it can be (with us) but 160 Years ſtanding.

140. As for the *Stone* it ſelf it is of an odd kind of *Texture*, and *Colour* too, not unlike (to Sight) to ſome ſort of *Cheeſe*, exactly of the *Figure* and *Bigneſs* as engraven in the *Table*; and moſt likely of any thing to have been one of their *Togra*'s, or *Stamps*, wherein the chief *Perſons* of the *Eaſtern Countries* uſually had their *Names* cut in a larger ſort of *Character*, to put them to any *Inſtruments* at once, without further Trouble. That they have ſuch kind of *Stamps*, is clearly teſtified by *Alvares Semedo*, in his *Hiſtory* of *China*: *They Print*, ſays he, *likewiſe with Tables of Stone, but this manner of Printing ſerves only for Epitaphs, Trees, Mountains, &c. of which kind they have very many Prints; the Stones which ſerve for this Uſe being alſo of a proper and peculiar ſort* [i], as ours ſeems to be: So that in all Probability the *Letters* on this *Stone* contain only the *Name*, and perhaps the *Office*, or other *Title* of ſome Perſon of *Quality*, and therefore hard to be found out; and that it was brought hither by ſome *Traveller* of the Honourable Family of the *Spencers*, and either caſually loſt, or careleſly thrown out as a thing of no value.

141. And thus with no ſmall Toil and Charge, yet not without the Aſſiſtance of many Honourable *Perſons*, whoſe

[g] Joh. Bromton *Abb.* Jorn. *in an.* 15. *Regis* Aluredi. [h] Hieronymi Oſorii *Hiſt. Luſitan. lib.* 11. [i] F. Alvares Semedo, *Hiſt. Chin. part.* 1. *cap.* 6. *ſub finem.*

Names

TAB. XVI.

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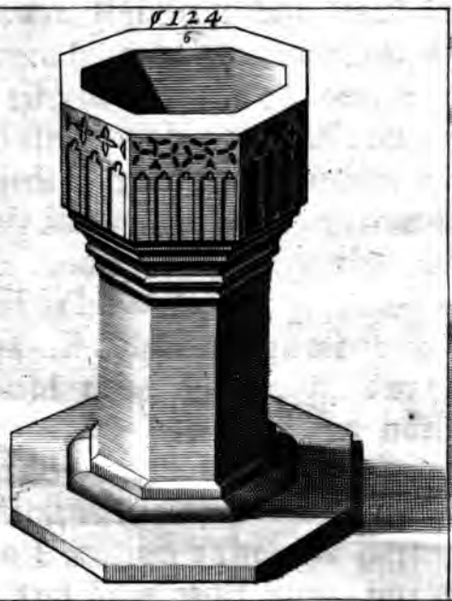
§ 127.

5.

§ 124

6



§ 107.

4.

§ 81.

3.

7.

§ 138.

7.

§ 139.

8.

To the right Worp.ll
S.r THOMAS SPENCER Baron.t one of the Noblest
Encouragers of this Essay
This 16.th Table
of some of the ANTIQUITIES of OXFORDSHIRE
whereof the last was dug out of HIS own grounds, in memory
of his Kindness is thankfully dedicated by
R. P. S. D.

M.C. Burghers sculpsit

Names in due time ſhall be all gratefully mention'd, I have made ſhift to finiſh this *Specimen* of *Oxford-ſhire*; which I am ſo far from taking for a perfect *Hiſtory*, that I doubt not but time and ſevere *Obſervation* (to which I hope this *Eſſay* will both encourage and direct) may produce an *Appendix* as large as this *Book*: For that new matter will daily preſent it ſelf, to be added to ſome one or other of theſe Chapters, I am ſo ſenſibly convinc'd, that even ſince the Printing the firſt Chapter of this *Treatiſe*, I have found here at Home juſt ſuch another *Eccho*, as at Mr. *Pawling*'s in *Heddington*, in the *Portico*'s of the new *Quadrangle* at St. *John Baptiſt*'s College. And ſince my writing the *ſecond*, my worthy Friend Dr. *Tho. Taylor* has found ſo ſtrong a *Chalybeat* Spring in *Fulling-mill-ham-ſtream* near *Oſeney* Bridge, that notwithſtanding laſt hard Winter (when the greateſt *Rivers* were frozen) this continued open and ſmoaking all the time, tinging all the Stones, by reaſon of its not running, nor mixing with other Water, with a deep *ruſty Colour*. And Thirdly, ſince the Printing the 48 §. of *chap.* 8. I have ſeen a *Lapis Ranulæ* taken out from under the Tongue of one *Johnſon* a Shoo-maker (by the skilful Mr. *Pointer* Chirurgion) here in *Oxford*.

142. Which is all I have at preſent to offer the Reader, but that he would take notice, 1. That in *chap.* 2. §. 69. where I mention a *Well* ſo eminent heretofore for curing *Diſtempers*, in the Pariſh of St. *Croſſes*, that it has given it the more laſting name of *Holy-well*; that I intend not that *Well* of late Erection (though perhaps the Water of that is as good) and now moſt uſed, but another ancienter *Holy-well* behind the Church, in Mr. *Nevil*'s Court before his Houſe. And that Secondly, notwithſtanding the Authority of the Learned Dr. *Hammond* (with whom a Man need not much be aſhamed to err) ſome will have, that he calls the *Well* of St. *Edward* in the Pariſh of St. *Clements*, rather the *Well* of St. *Edmund*, for which I find the very ſame Authority alleged, that Dr. *Hammond* brings [k]. And Laſtly, to beg of him, that though in general he find me unequal to my Deſign, and many Particulars of this *Eſſay* perhaps ill placed, and worſe expreſſed, that yet in Conſideration that this is my firſt *Attempt* (wherein many *Inconveniencies* could not be fore-ſeen, which may hereafter be avoided) he would candidly accept of the *Sincerity* of my Intention, with all imaginable endeavour of *Amendment* for the future, in Lieu and Excuſe of my preſent *Inabilities*.

[k] *Vid. Hiſt. & Antiq. Univ.* Oxon. *lib* 2. *p.* 10. *col.* 1.

A D-

ADDITIONS *to* CHAP. X.

§. 16. [When they beat *Cæſar* from the Shore.] With which agrees the *Saxon* Chronicle, which expreſly ſays, *Acri primum pugna fuit oppreſſus, ac magnam partem ſui Exercitus amiſit.* Chron. Saxon. *p.* 2. 10.

§. 22. [*Ikenild-way.*] That this is a true *Ikenild-ſtreet* as well as that in *Warwick-ſhire*, is plain from what Mr. *Camden* cites out of an old Book concerning the Wars of *Offa* and *Kinulph*. *Camd. Brit.* p. 280. Edit. *Lond. An.* 1637.

§. 35. [*Offa's Ditch.*] *Offa Rex Merciorum vallum magnum a mari uſque ad mare fecit.* Chron. *de* Mailroſ. *p.* 140.

Ibid. [*Mercians.*] *Mercia* was ſo called, becauſe it lying in the middle of all *England*, it was limited, bounded or markt out (Merc) ſo ſignifying (as it was expedient it ſhould) from the reſt of the Kingdoms bordering upon it. *Lambard's* Peramb. of *Kent.* p. 5.

§. 58. [But whether this Glaſs, &c.] Of this Glaſs ſee *Muſæum Moſcardii, lib.* 1. *cap.* 31.

§. 65. [But about what time it was theſe *Philoſophers* arriv'd.] To which may be added what *Thomas Gulielmus* ſays *in Chron. Brit.* viz. *Pherychtiand ordh yn trigo yn Rhydychen cyn gwneithyr O Alphred yſcol yndhi; i. e.* that *Chymiſts* dwelt at *Oxford* before *Alfred* built a School there.

§. 66. [That *Britan* was known to the *Greeks.*] Of *Britans* being known to the *Greeks* ſee more in *Pliny, Lib.* 4. *cap.* 16. *&* *in* Camden's *Britan.* p. 28. Edit. *Lond. An.* 1637.

§. 68. [*Ancaſtle.*] *Croculanum* is *Ancaſter* or *Ancaſtle* according to *Burton, vid. Indic. prim. Stat.* Rom. *&* p. 215.

Ib. [*Aldbury.*] Of *Aldbury, vid. Burt.* upon *Ant.* p. 57. 89.

§. 73. [*Dorcheſter.*] *Durnonovaria, quære* whether *Dorcheſter* in *Oxford-ſhire, vid.* Burt. *Stat. Indic. primum.*

§. 76. [At a place called *Seorſtan*, &c.] Unleſs we ſhall rather think this Battle fought at *Sareſden*, where there is a *Barrow* called *Lineham Barrow* from the Village near which it is, but both in the Pariſh of *Sareſden, vid.* §. 80.

§. 80. [In the Pariſh of *Bladen.*] *An.* 1069, *Fuit bellum in Bleoduna* ſay the Annals of *Margan*, p. 1.

§. 120. *Eynſham* was alſo a very ancient Town, the Abbey being Founded there before the Conqueſt, and the old Poet, *Robert* of *Gloſter*, mentions a Caſtle at *Eynſham*, which certainly muſt be this, there being no other Town in *England* of this name, *vid. MS. Dugd. in Muſ. Aſhmol. N.* p. 136. *b.*

FINIS.

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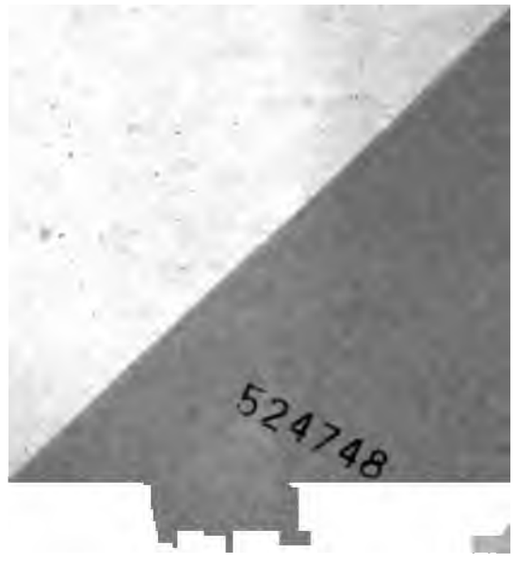
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